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INTESTINAL OBSTRUCTION*

BY

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Intestinal obstruction seems to me to be a subject that should interest a very large part of the profession. General practitioners, physicians, surgeons, even gynaecologists, are not infrequently confronted by these cases, and occasionally those who specialize in departments more remote from the abdomen may be invoked in the differential diagnosis of, shall we say, cerebral tumours and meningitis. Further, I always regard intestinal obstruction as the one condition where we seem to have made least improvement in results since the rise of abdominal surgery in the past thirty years, at any rate as compared with other urgent conditions of frequent occurrence, such as appendicitis and perforations of peptic ulcers. To the surgeon, obstruction appears an important disease, because it is not uncommon, not always easy to diagnose, and only too often very, very hard to cure, and only surgery can cure it. What do we mean by important diseases? May I lead you through some of the pleasant byways of that fountain of information (I was almost tempted to say knowledge) the Registrar-General's Returns. I can strongly recommend it to while away a dull hour or two, for it is quite as interesting to a medical man of a romantic and imaginative turn of mind as is Bradshaw or Cook to the confirmed globe-trotter, though perhaps based on less irrefutable facts.

Now the Registrar-General tells us that of a million persons every year there die of influenza 300 to 500, of cancer 1,500, of tuberculosis 1,000; these are important diseases from the State's point of view. The cases which occupy the surgeon's small purview play a far less important part, at any rate numerically. Thus of the aforesaid million per annum the mortality is from appendicitis seventy-five, intestinal obstruction sixty-seven, gall-bladder diseases fifty, prostate, I regret to say, 200. The uterus and breast account for about 300 to 400 between them. In other words, less than 1 person per 1,000 per annum dies of diseases in which major surgery plays a part. Whether this speaks well or not for surgery it is impossible to say, as we have little knowledge of the incidence of the various diseases. One thing does stand out in these statistics: that the mortality of the diseases in which we surgeons take special interest is not diminishing recently; perhaps these diseases are becoming more common—a pious hope. Hospital statistics certainly showed great improvement about the beginning of the century.

Turning back to our subject, I find that my own figures agree roughly with those of the Registrar-General. Intestinal obstruction is about six times as rare as appendicitis, but is about six times as fatal, making the number of deaths roughly the same for each (respective mortality 36 per cent. and 6 per cent.). So that taking end-results as a criterion of importance there is not much to choose between obstruction and appendicitis. It might be argued that obstruction is more a disease of elderly and old persons, while appendicitis cuts into the younger generation; still we find many obstruction cases in quite young persons—for example, intussusception and obstruction by bands—whilst appendicitis is certainly a more serious disease in the old and obese with doubtful hearts and kidneys.

Definition of Intestinal Obstruction

A number of conditions of very different pathology are conveniently grouped under this head. The main point they have in common is that the intestinal contents, both liquid and gaseous, are unable to pass along the bowel. The causes of this inability are many and various, and fall into two groups: mechanical and adynamic.

Mechanical.—In the mechanical type the lumen of the gut is definitely blocked by (*a*) impaction of mobile bodies, gall-stones, enteroliths, Murphy buttons, etc.; (*b*) stricture, usually malignant, also tuberculous; (*c*) kinking by multiple adhesions; (*d*) snaring of loops of gut by bands and in pouches such as internal herniae; (*e*) twisting or volvulus; (*f*) telescoping or intussusception. In the last three groups we must expect to find interference with the blood supply in the affected loop of gut, so that gangrene will usually take place within a few hours or days, according to the tightness of the obstruction. Gangrene is the most serious complication of obstruction, and in the varieties mentioned is almost inevitable unless diagnosis be speedy and treatment prompt.

Adynamic.—Less common, except after operations, is the condition in which the bowel, without any mechanical block, is unable to pass along its contents, and which is known as adynamic ileus or simply ileus. Post-operative ileus is not uncommon in varying degrees after abdominal operations, especially where infection is already present—for example, severe appendicitis. The exact nature of the affection is not always apparent. Most cases clear up, and those patients that die generally have a fibrino-purulent peritonitis, so that the probability is that such cases are in fact different degrees of not well-circumscribed peritonitis which either by the congestion and oedema of the gut prevent its action or by producing bands of lymph do actually obstruct the bowel mechanically, in which case, of course, the affair belongs to the group of mechanical obstruction, at any rate in part. The task

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in post operative cases of distinguishing ileus from mechanical obstruction is often very difficult, and the decision as to whether or not to reopen the abdomen may be an awkward problem. Apart from post-operative conditions, pure ileus is not at all common, and is most often found as a terminal state of renal failure whether from a granular contracted or congenital cystic kidney. On one occasion I operated on such a case where there was great distension of the gut, but no mechanical obstruction was found; post mortem, both suprarenals were destroyed by haemorrhages.

Aetiology

There is not much to say about this from a practical point of view. One-third of the cases are due to cancerous stenosis, the origin of which is still veiled in mystery. Intussusception accounts for less than a quarter of the cases, and concerning the usual type, that of small infants, there is still a good deal of uncertainty as to the connexion with colitis and enlarged Peyer's patches, which may act in the guise of polypi and get drawn down the bowel, forming the apex of the intussusceptum. Of course true polypi, whether innocent or malignant (usually the latter), as well as inverted Meckel's diverticula, do actually form the point of origin. Gall-stones large enough to cause obstruction never, I think, come down the common duct, but always ulcerate their way into the duodenum. Not that the common duct is not sometimes large enough to permit the passage of such stones, but because such large common ducts, which occasionally attain the size of a melon, are caused by some block at the lower end which makes it impossible for a stone to enter the bowel in this way.

Bands causing obstruction are in my experience far more commonly due to appendicitis than to any other cause. I found that out of fifty-four cases of obstruction by bands thirty-four were definitely of appendicular origin, and of these thirteen developed with an attack of appendicitis; in other cases appendicitis was probably responsible but could not be proved guilty. Tuberculous glands and peritonitis account for a few more, and gynaecological affections and operations for an occasional case, though hardly as often as might be expected, for the gynaecologist has about the worst place for producing obstruction, owing to the way in which the small gut hangs into his field of operation—the pelvis.

Varying Degrees of Severity

The main factors in relation to severity are: the rate at which obstruction becomes complete, especially as regards the passage of flatus along the bowel. Thus a slowly growing annular cancer of the bowel takes a long time to produce any symptoms at all. The lumen, which is normally one to two inches wide, can be narrowed to something like one-half to one-quarter of an inch, at any rate in the small and upper part of the large gut, without any notable effect on the patient. On the other hand, when the intestinal current is suddenly cut off, as by an impacted gall-stone, snaring of gut by a band, a volvulus, or an intussusception, immediate symptoms are produced, though it is hardly possible to separate the effect of pure block of lumen by impacted gall-stone from the effect of obstructed lumen combined with pressure on vessels and nerves, as in the last three types. Further, symptoms when present may be intermittent. This is common in cases of stenosis (usually cancerous), presumably because some less fluid constituent of the intestinal contents temporarily blocks the small opening remaining, but ultimately passes on with relief of symptoms. The same thing may happen when a gall-stone is impacted in the bowel with temporary relief, and occasionally after several periods of alarm and relief the stone may be passed per rectum and the patient be cured by nature—a termination so rare that one dare not look for it to happen. We have, then, these varying types: the acute with sudden onset and severe symptoms where there is clearly some abdominal crisis; the intermittent, which may also come on sharply, but while the medical attendant is making up his mind the condition ameliorates and he temporizes unwisely instead of taking definite steps to confirm or confute the provisional diagnosis of intestinal obstruction; and lastly, the sort which in the early stages only suggests some vague departure from the normal in the abdominal functions, generally covered by the euphonious term "dyspepsia," but which later, if accurate diagnostic measures be not taken, will turn into a sharp attack of definite obstruction.

To the last variety the term "chronic" is often applied, which is a bad term, and liable to lead to unnecessary delay in diagnosis and treatment. I must confess I do not like the term "chronic" obstruction, for in these cases, by the time symptoms are sufficient to warrant an approximate diagnosis, I have always found that the condition of the bowel above the obstruction as regards distension and congestion rather deserves the name "acute" than "chronic." In fact, I regard obstruction somewhat as the bargee regarded his beer. You will no doubt remember that this simple critic recognized that some sorts of beer were better than others, but considered that none was bad. So I perceive that some obstructions are more acute than others, but none are truly chronic.

Factors in Death from Obstruction

There are two possible main factors in the downward course of a case of intestinal obstruction: first, depression from dehydration; secondly, sepsis and toxic absorption.

It is a well-known fact that, other things being equal, the higher the obstruction in the intestinal tract the more rapidly fatal it is, and there can be little doubt that it is the loss of a large absorbent area and starvation of the tissues as regards water and salts, especially chlorides, that is responsible for this rapidly fatal depression. At one time a fairly good case seemed to have been established for the action of toxic products in the obstructed portion of the gut, but this idea appears to be losing ground, and in practical surgery there seems to be little or no evidence of any great toxicity of the fluid, for in doing resections and anastomoses in these cases one cannot avoid fouling the surroundings to some degree, and yet healing is usually good if the patient be not too depressed to rally from the operation. Moreover, the fact that high obstruction is more rapidly fatal than the low variety, in spite of the more offensive character of the intestinal contents in the latter, is a fairly practical proof that it is not the absorption of toxic materials from the obstructed bowel into the circulation which does the harm, but the deprivation of valuable foodstuffs, water, salts, bile, perhaps hormones, which are essential to the well-being of the patient.

Another factor is sepsis in the shape of peritonitis, when portions of the gut have been badly strangulated and become gangrenous, or have given way above the obstruction from ulceration and over-distension, as sometimes happens in cases of obstructive cancer of the colon.

Reasons for Persistent High Mortality

Several points are to be noted in this connexion. The initial lesion of an obstruction varies enormously in severity, and may be far more lethal than any of the

peritonitic emergencies—for example, appendicitis, acute cholecystitis, perforation of peptic ulcer—with the exception of haemorrhagic pancreatitis. After all, the start of an obstructed or fulminating appendicitis, or even the perforation of a peptic ulcer, is hardly in the same class as a mesenteric thrombosis, a hernia through the foramen of Winslow or diaphragm, or a volvulus of the whole small intestine, where the prospects, however early diagnosed, are nearly hopeless. Obstruction cases, even the least severe, are on a large scale, and need wider laparotomy and more handling than do any but most exceptional cases of appendicitis. Another, and I think the most important, factor is the greater difficulty in making a diagnosis at an early stage, or even sometimes in realizing that an important and urgent condition has arisen which may need operation at the earliest moment.

The acute peritonitic abdomen is not often left long without surgical attention, and the same is true of the acute haemorrhagic abdomen (ruptured ectopics, ruptured spleens), for the tenderness and guarding in the one type, the pallor and prostration of the other, are noted at once. Obstruction is far more obscure in its objective signs, and depends largely on its symptoms for diagnosis. We modern materialists are perhaps too much inclined to seek for signs and find them not. How often do we hear the cheerful remark, " The abdomen is not rigid," as if all was well!

Diagnosis

The following signs and symptoms call for consideration: pain, vomiting, constipation, shock, state of abdomen, hernial rings, rectum, and, lastly, *x*-ray investigation.

Pain in the abdomen will always be noted, but of greatly varying intensity, from what is hardly more than discomfort or indigestion, as one finds in slowly narrowing stenosis, to acute, agonizing pain, doubling up the patient like a renal or biliary colic. At first intermittent and colicky the pain tends to become constant. We must try to distinguish it from biliary and renal colic by the absence of radiation to shoulder and testis respectively. Nor must we forget that there are other sorts of bowel colic besides that due to obstruction, such as lead poisoning and tabes; nor must we, finally, fail to realize that a patient with lead poisoning or tabes may also have an intestinal obstruction, and that it is better to open the abdomen of a patient with a gastric crisis than to leave unopened a tabetic with obstruction, though equally galling to the pride of the diagnostician. I have known of instances of both these unfortunate episodes. In old people pain is often slight.

Evidence of Stoppage of Intestinal Contents

Since the intestinal contents are unable to pass the point of obstruction two results naturally follow: (1) The fluids secreted by the upper digestive tract, stomach, liver, pancreas, etc., rapidly accumulate, regurgitate into the stomach, and are vomited. (2) Although after obstruction is established the bowel below may be emptied of its contents, there will shortly be cessation of passage of faeces and, what is more important, of flatus.

Vomiting.—This will vary in character and urgency with the position and rapidity of onset of the obstruction. When the block is high up in the jejunum there is a smaller capacity for holding the upper secretions, bile, etc., and also a smaller absorbent surface, consequently vomiting sets in early and copiously, altering from gastric contents to bile, semi-digested intestinal content, and finally offensive brown liquid, which is, however, not faecal in character, and the patient, unless relieved, dies rapidly of dehydration and starvation. Where the obstruction is low down—for example, in the sigmoid—a different picture obtains. Here, owing to the larger capacity of the bowel above the block and its greater absorbent surface, vomiting comes on much later, sometimes not for days, and does not attain for some time the urgency noted in the more acute types. It is in this group that, after a series of vomits gradually deteriorating in character, we ultimately get the true faecal vomit—that is, liquid faeces are vomited. This sign means that obstruction has been present for some time, but it also means that the obstruction is low down, and patients with faecal vomiting are often not such bad risks as those with less offensive vomits but where the obstruction is higher up. After all, quite a number of patients with faecal vomiting recover.

Constipation.—As mentioned before faeces may be passed shortly after the onset, but it is the inability to pass flatus, though feeling that its passage would give relief, that is the important sign. When in doubt the administration of two enemas in succession is helpful: if there is no flatus with the second there is probably an obstruction.

Shock.—This is variable, and in the earlier stages very often slight. One must not expect profound shock in most cases till some time has been lost. Blood pressure is seldom lowered in acute abdominal conditions, with the exception of internal haemorrhage (ruptured ectopic), unless the patient is so badly depressed as to be practically moribund.

State of Abdomen.—In a large number of early cases examination of the abdomen reveals nothing, but yet such negative evidence may be valuable. It must be recognized that a soft, flaccid, even hollow abdomen with no tenderness is quite compatible with a severe degree of obstruction. In fact, when associated with abdominal pain which increases and remits, with rising pulse, an urgent green vomit becoming brown, a hollow-eyed, anxious expression, and subnormal temperature, there is no distension or rigidity or tenderness, it is clear that the affair is even more grave, for there is surely obstruction present. Respiratory movements of the abdomen are not affected except where the distension is great, as in volvulus, or later when a terminal ileus and peritonitis sets in. Distension is seldom great in the early stages except in volvulus. In the later stages of so-called chronic obstruction, when it is becoming definitely acute, distension may be great. Local distension is not so common, but when present is a valuable sign; a tender, fixed, resonant swelling in some part of the abdomen may indicate a loop of gut snared under a band or in a paraduodenal hernia. In one instance the pyloric end of the stomach had become strangulated in a diaphragmatic hernia, and the fundus formed a resonant tumour in the epigastrium. Visible peristalsis is not an early sign, and is more often seen in the subacute forms. We must distinguish the normal peristalsis seen through the thin abdominal wall of old persons: in true visible peristalsis a loop of gut erects itself into notice with accompanying colicky pain.

Tumour.—Intussusception is the only one of note. Cancerous tumours are occasionally but not often palpable; the palpable sort in the caecal region seldom produce obstruction.

Hernial Rings.—I need hardly refer to this classical source of error except to remind you that in a large, fat woman a small femoral hernia will readily escape notice. Local pain is often absent, and the mortality for herniotomy is only about one-third that of a laparotomy for obstruction.

Examination of the rectum may reveal a malignant stricture and point to an inguinal colostomy—less severe than a laparotomy. Finally, the presence of blood and mucus on the examining finger may mean intussusception.

X-Ray Examination

This may be of great help, and may be employed in at least three ways. (1) Barium meal, and observing at intervals of six to twenty-four or forty-eight hours whether there is any hold-up of the barium or any narrowing. (2) Barium enema, which may be used to show obstruction in the colon. (N.B.—These methods are only suitable for the less acute types, and one must remember in locating the point of obstruction that the opaque meal may be held up a long way above the true point of obstruction by the accumulation of liquid and gas above.) (3) Perhaps the most valuable method is the plain *x*-ray of the abdomen, which will show coils of distended gut above the obstruction and levels of fluid in the obstructed coils when the patient is placed in an approximately vertical position. This plan should be employed as a routine in doubtful cases, because it does not upset the patient, takes little time, and may save hours of delay—for example, when trying to decide whether a colic is biliary or renal or due to obstruction.

Treatment

The cardinal rules are an early operation, a quick operation, or quick in and quicker out, but with the proviso that the obstruction must be adequately relieved. Thus in a case of matting by adhesions we must take care that some outlying but important band is not left undivided. Further, greatly distended gut should be relieved of its contents on the table. The simplest plan is by making a small hole in a distended loop held well below the laparotomy ; several feet of gut can be emptied in this way, and three holes will suffice to empty most of the small intestine. When the gut does not contract well after emptying, one should think of making an ileostomy with a sewn-in catheter ; this is a valuable help in bad cases, since not only can gas and fluid escape but saline and glucose can be passed in through the same tube. Where distension is very great, so that the site of obstruction is hard to find, it will probably be best to enlarge the laparotomy and eviscerate all distended gut under warm towels ; the time saved by this, as against groping about vaguely, more than makes up for the extra shock of evisceration. Where many adhesions are divided so that raw surfaces are left which cannot be oversewn, and there is considerable likelihood of more adhesions forming, it seems a good plan to pour in liquid paraffin, two to four ounces—at least, good results have followed this plan. It is often necessary to open and drain the gut in order to reduce a snared or twisted loop—for example, in volvulus. A small puncture will let out volumes of gas, and the loop of gut from being like a blown-up motor tyre will become as soft and amenable as a piece of tripe unless gangrene or incipient gangrene has developed.

The Caecum.—It is a sound old rule to regard the caecum as the cardinal landmark of the operation. For not only does a full, distended caecum point to an obstruction lower down, but an empty, contracted caecum is the proper place to start investigation for the source of obstruction in the small gut. Where the abdomen is filled with numerous coils of distended small gut it is little use to hunt these up and down, for such treatment only causes further distension ; but if the caecum is located the contracted small gut above it may be quickly and easily followed up to the site of obstruction, doing little harm to the bowel and saving much valuable time under conditions where saving time may well be saving life.

Resection of gut should be avoided at the primary operation if possible, but may be urgently necessary when gangrene is present. Whatever method is practised a high mortality is inevitable. For small gut after resection an end-to-end anastomosis and closure will be best, as with the simpler method of draining the ends on the surface there is apt to be too much loss of vital fluids for the patient to stand it. In the colon gangrene is not common, except in cases of volvulus, and here the best plan will be to bring the two ends to the surface after resection and fix with Paul's tubes ; later the spur is crushed with an enterotribe. One should make every effort to reduce an intussusception, even to bursting the outer layer before resecting it, for it frequently happens that at the last moment the intussusceptum slips back and the probable mortality drops from 90 to 15 per cent.

In the colon, except in some cases of volvulus, the operation will usually finish as a colostomy : the question is where to do it. A caecostomy is the most usually suitable, either because there is too much distension to find the site of obstruction easily or there is a removable growth felt lower down the colon. If *per contra* the obstructing growth is irremovable one must consider whether a short circuit around it is feasible ; or, if a colostomy is to be done it should be as near the growth as is convenient in sigmoid or transverse colon to avoid the damage to the skin from the liquid contents of the caecum.

Prevention of Recurrence

The careful division of bands and closure of holes and internal herniae is an obvious precaution. Ordinary infantile intussusception seldom recurs, though I have seen it happen. When the intussusception is due to a polypoid growth inside the gut or invaginated Meckel's diverticulum removal is essential. Volvulus is another problem ; the ideal method is to resect the greater part of the loop, making an end-to-end anastomosis with the few inches left at each end, but in few cases is it feasible, either from the bad state of the patient or the gut. A small enterostomy in the loop serves to prevent its twisting, and also assists in keeping the bowel drained. I have found this method useful in volvulus of whole small intestine, though it has the theoretical weakness of making an internal aperture through which coils of gut might slip and become strangulated.

Conclusion

Intestinal obstruction is a condition which, unless treated surgically, is almost inevitably fatal. One can safely say that of the patients who survive at least 99 per cent., and probably more, would have died without surgery. I have met with cases of gall-stone obstruction where the stone has passed, of volvulus which untwisted (but afterwards recurred), of intussusception which reduced itself. I have seen one case of each such recovery amongst between 200 and 300 obstruction cases, so that the hopes of natural cure may be regarded as negligible.

There are other important groups—gastric cases, goitres, etc.—where one must admit there is scope for quite different lines of treatment—medical, surgical, *x* ray, radium, etc.—and where the main point is to determine whether and when it is wise to change from one line of treatment to another. But in the case of obstruction once the diagnosis is made, and even where there is much suspicion, we must consider that surgery affords the only rational line of treatment. In fact, the disease is mechanical and the treatment should also be mechanical, and only by making our diagnosis earlier can we hope to get better results.

IRIDOCYCLITIS *

BY

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Although these last twenty years have seen important advances in our knowledge concerning the aetiology of iridocyclitis, ophthalmologists are feeling more bewildered than ever at the problem of causation. Their perplexity is natural. Many of the most striking observations have been of a negative kind, sweeping away barriers which were formerly supposed to define various clinical types, or undermining the validity of long-established diagnostic criteria.

Tuberculous Infection

Let us consider for a moment the tubercle bacillus, which on the European mainland is often held responsible for 50 per cent. or more of the cases of iridocyclitis, although the average English-speaking ophthalmologist blames it in less than 5 per cent. It has, of course, been recognized for a long time that the ordinary tuberculin diagnostic test was open to the objection that some focus of tubercle was present in almost every person, so as to destroy the significance of a positive reaction. Most people, however, were ready to be convinced by the therapeutic test. When a patient suffering from iridocyclitis of doubtful origin unresponsive to other kinds of treatment derived obvious benefit from a course of tuberculin, he was usually credited with a tuberculous aetiology. No such conclusion is justified if we are to take into consideration the recent researches of Almroth Wright. This authority believes, on experimental evidence, that tuberculin may augment the immunity to other organisms—for example, staphylococci. As for the clinical appearances of tuberculous iridocyclitis, Finnoff reminds us that the classical chronic form characterized by nodules on the iris and "mutton fat" k.p. is by no means the only possible variety. He points out that many cases begin violently, presenting signs indistinguishable from those that occur in other kinds of iridocyclitis.

Syphilis

Similar difficulties may arise in connexion with syphilis. Not every case of syphilitic iridocyclitis displays iridic nodules in association with a rash, a sore throat, and rapid loss of hair. Campbell believed that 70 per cent. of his iridocyclitis cases were syphilitic. He argued that, having had a small painless primary sore, and insignificant secondary manifestations, many of them were unaware of having become infected. The fallacies that arise when the therapeutic test is considered in relation to this disease are at least as formidable as they are in the case of tubercle. More than twenty years ago Terlinck reported three cases of uveitis developing a few days after an injection of arsphenamine or mercury. To-day the Herxheimer reaction is a well-known phenomenon, whether it occurs in a hitherto unaffected eye, or as a rekindling of one that is quiescent, or as the exacerbation of an already established iridocyclitis. It may result from the administration of excessive doses in the early stages of treatment, in which case it is attributed to a large dose of toxin derived from disintegrating spirochaetes; or the "rezidiv" type may occur when treatment has been abandoned too soon. Other important considerations are that some syphilitic lesions are very slow to respond to treatment, and that some cases of non-syphilitic iridocyclitis appear to be benefited by arsenical or mercurial preparations. In fact, so far as immediate results are concerned, a case of syphilitic iridocyclitis treated by antisyphilitic remedies may improve, get worse, or remain stationary. The same three possibilities apply with equal validity to non-syphilitic cases; and so, unless there is clinical evidence of syphilis elsewhere in the body, we must look elsewhere for the means of distinguishing the one from the other. Can a Wassermann reaction be expected to give much help? We know that in a considerable proportion (over 6 per cent. according to Zimmermann) of iridocyclitis patients yielding a positive result the aetiology is other than syphilis. Moreover, the proportion of negative results obtained from undoubtedly syphilitic people is generally admitted to be higher in late than in early cases.

Fifteen years ago I used to be taught that the Wassermann reaction was not a fool-proof pathognomonic test, and that it should be regarded only as a link in the chain of evidence, employed in conjunction with clinical and other data. I was, however, given to understand that it was a strong link, and that although negative results should not be too optimistically interpreted, yet a positive reaction rendered a diagnosis of syphilis highly probable. According to the figures published by Penrose in 1933, my teachers must have unduly flattered this test. Penrose writes:

> "The results of testing the blood of mental defectives for evidence of syphilis have been extremely inconsistent with each other. . . . It is noticeable . . . that the incidence of positive reactions is on the whole higher when the number of cases tested is small than when it is large. It looks as though investigators usually began testing because they were attracted by a group of cases where positive findings seemed likely to be, or actually were, very frequent. . . . The reaction . . . is so delicate that it is possible for two observers to make tests on the same specimen, using slightly different techniques, and for them to give bona fide results which differ from one another. For example, 500 specimens of venous blood taken from patients at the Royal Eastern Counties Institute were tested independently by two separate laboratories. Laboratory A returned thirty-eight positives, or 7.6 per cent., and Laboratory B returned 40 positives, or 8 per cent. So far, so good; but when it is found that only in eleven cases, or 2.2 per cent., did the two laboratories agree that the *same specimen* gave a positive reaction, the result is less satisfactory."

If these researches were to be repeated with similar results by several different observers, the Wassermann reaction would surely cease to have any significance, save for the medical historian.

Focal Sepsis

Nettleship wrote in 1879 that dental trouble might have some connexion with a group of cases characterized by localized choroido-retinitis and k.p. spots, but the theory of focal infection as an explanation for doubtful cases of iridocyclitis was not commonly put forward until shortly before the Great War. The doctrine of intestinal auto-intoxication was beginning to gain ground in 1912, when Coats made the wise criticism that in almost every case of iridocyclitis this process could be assumed as an explanation, and positively disproved in almost none. More and more people began to look askance at their patients' teeth. Lang thought that about one-third of his cases of iridocyclitis, as well as all his cases of senile central choroiditis, were of dental origin. He also considered that a similar focus of infection could arise in the

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Melbourne, 1935.

tonsils, sinuses, skin, or in any mucous membrane, but that teeth were by far the commonest offenders. According to him, inflammatory lesions in the eye were attributable to teeth forty times as commonly as they were to the tonsils. Brown and Irons, on the other hand, blame the tonsils almost as often as they blame the teeth in their first series of 100 cases. Gifford's experience was still further to the detriment of the tonsil, to which he allotted nearly twice as much responsibility for iridocyclitis as he did to the teeth.

Teeth

Coats's remarks on intestinal auto-intoxication might aptly be repeated with regard to the teeth. Suppose the dental explanation for iridocyclitis were to be attacked on the grounds that, although pyorrhoea affects a large proportion of middle-aged and elderly people, yet iridocyclitis is a comparatively rare condition. Then the obvious retort is forthcoming that among all the million of people who swallow and inhale clumps of tubercle bacilli, only a small proportion provide signs or symptoms of tubercle during life ; and that this fact is not regarded as an argument against the capacity of this bacillus to produce phthisis. Now let us imagine that we are confronted with an obscure case of iridocyclitis in consultation with a colleague who is determined to believe in its dental origin. Externally the teeth appear healthy. He remarks with perfect justification that dental sepsis is compatible with a normal exterior. *X*-ray photographs are accordingly prepared and show no abnormality. Thereupon he quotes Haden, who has written as follows: "Teeth negative in radiograph may bear as important an aetiologic relation to disease as those which show evident infection." He prevails upon the patient to undergo removal of the teeth, whereupon one of three things will happen:

(*a*) The iridocyclitis clears up, and triumphantly vindicates the theory of dental origin.

(*b*) The eye becomes still more intensely inflamed because, he says, the surgical interference has let loose a flood of toxins or bacilli into the blood stream. (Compare the Herxheimer reaction in syphilitic cases ; or the aggravation of a gonococcal iridocyclitis by vigorous prostatic massage.)

(*c*) No change is observed. He postulates, therefore, a secondary focus of infection which must have arisen in the prostate gland before removal of the teeth. The prostate has now taken over the noxious function of the teeth. Suppose that prostatic palpation by an expert reveals no abnormality. He reminds us of Benedict's paper, in which we are told that chronic prostatitis may be present without any local signs or symptoms. The patient's prostate is removed. Still the iridocyclitis goes on, but our imaginary friend has a ready explanation. He advises us to consult Zentmayer's paper on the prostate as a focus of infection in ocular inflammation. There we are told that persistence of inflammation after removal of a focus does not absolve that focus from blame. The original focus may have lowered the resistance in such a way that the tissues are now vulnerable by lesser toxins, of a kind that would do no harm in unprepared soil. At this point we are tempted to fling up our hands in despair, and the more so because we are not in a position to disprove any of his arguments. The more we consider aetiology, the more difficult and complicated the problem becomes. Concerning such a hypothetical case, one might speculate with equal plausibility in several directions.

I do not intend to imply that there is no evidence for iridocyclitis of dental origin. There is a great deal of evidence from animal experiments, to which I shall presently refer. Moreover, Paton's 1916 case, in which he obtained a mixed growth of staphylococcus and *Micrococcus tetragenus* from the anterior chamber may be significant. Other cases might be cited in support of the dental theory, and nobody would maintain that there is anything inherently impossible therein. We know that death from septicaemia has often ensued within a few days of a small skin scratch in an apparently healthy subject. The production of an inflammatory reaction in the eye would therefore seem to be well within the range of possible activity for a few organisms or toxins escaping into the blood stream from the teeth or gums.

Objections to Dental Theory

In spite of the above considerations, I believe the tooth bogy has been absurdly exaggerated. It would require a greater mass of strong clinical and pathological evidence from the human subject to establish dental sepsis as a common cause of iridocyclitis. My main reason for this distrust is the lack of any characteristic clinical type of dental iridocyclitis. Now there is in several of the well-established varieties of iridocyclitis a clinical form so characteristic as to be practically pathognomonic, especially, for example, in gonorrhoea, which will be presently considered. It is not pretended that every case of gonococcal iridocyclitis is typical. There are many examples which, as far as the iridic appearances are concerned, might equally well be due to any one of several causes. But there is, I repeat, a type in which that disease can be certainly diagnosed from the eye signs alone. No such claim has ever been seriously made concerning an alleged case of dental iridocyclitis. Admittedly this argument does not disprove its existence, but it does, at any rate, throw some doubt on the contention that teeth are a common source of ocular infection. Here is one more objection to the dental theory. If teeth were really so often to blame, we should expect among ophthalmologists practising under similar conditions at any given period of time in the same geographical area, some general approximate agreement as to the relative frequency of dental as compared with other varieties of iridocyclitis. We find no such agreement. On the contrary, we hear most divergent opinions expressed. Some people blame the teeth for nearly all cases of episcleritis, iridocyclitis, and even ordinary senile lens opacities. Others less than a mile distant will scoff at the possibility of any ocular inflammation arising from dental sepsis. The dental theory has now been freely ventilated for nearly a quarter of a century, but in spite of its many enthusiastic supporters (or perhaps in some cases because of them) it has not yet established itself as a common cause of iridocyclitis.

Gonorrhoeal Iridocyclitis

Gonococci in the blood of a patient suffering from iridocyclitis were first isolated in 1901. Brodie reported metastatic eye infections in gonorrhoea as long ago as 1818. Mackenzie remarked nearly a hundred years ago that plastic exudations were more common in gonorrhoeal than in any other variety of iritis. He spoke of

"a profuse effusion of coagulable lymph, filling the pupil, and sometimes falling down in a curd-like form . . . into the anterior chamber. In some cases the anterior surface of the iris is covered with lymph as if coated with white paint. The anterior chamber is sometimes almost filled with the effused lymph. . . . No tubercles are present on the iris. . . . Gonorrhoeal iritis is very severe, but yields more promptly to treatment than any of the others, even when the anterior chamber is filled with lymph. After the lymph in the anterior chamber and within the verge of the pupil is absorbed, a cake of it is sometimes seen lying in the centre of the capsule. This is also absorbed."

Is not this a first-rate description? Kipp, writing in 1880, likened these coagula to " an opaque lens suspended in the aqueous in front of the pupil." Mackenzie commented on the severe onset in this variety of iridocyclitis. Sometimes it is so violent that a spontaneous hyphaema develops. So far as I know, this feature has never been reported in association with non-gonococcal cases.

Males are affected more than twenty times as commonly as females. I have never been able to observe the characteristic massive coagulation in a female. In the male I have seen it many times. Such an anterior chamber under slit-lamp examination looks as if its circulation were suspended for ever, and yet particles may be seen freely moving about in the aqueous a day or two later. The preponderance of male cases is probably due to one or both of these two factors: (*a*) the greater length and tortuosity of the male urethra ; (*b*) the accessory sexual glands in communication with the male posterior urethra. Possibly these structures give rise to a substance which in combination with the bacilli elaborates some ocular poison which the bacilli alone could not produce.

It has often been stated than gonococcal iridocyclitis is never seen until the onset of arthritic trouble from the same cause. This is inaccurate. Byers noted that ten of his 109 cases showed iritis prior to the involvement of joints. Mackenzie said of this variety of iritis that it may or may not be preceded by synovitis. Goulden mentions a case in which iritis was seen six weeks after the original infection. This interval is exceptionally short. Posterior urethral infection may remain latent for many years. Cobbledick was able to demonstrate gonococci in the centrifugalized urine of a patient whose first and only attack of gonorrhoea had been sustained thirty years previously. Recurrence and eventual bilaterality are other notable features of iridocyclitis from this cause. Lang said that relapses in gonorrhoeal iritis could be prevented by local treatment to the prostate, but most people to-day would say that his statement was too optimistic. Williamson-Noble mentions a case in which removal of the infected prostate prevented a recurrence of iridocyclitis, but does not say how long the man was observed after the operation. I have the impression that atropine irritation is commoner in gonococcal than in other forms of iridocyclitis, and that it is nearly always followed by irritation to all the other mydriatics which may be successively substituted for the atropine. This unfortunate complication may necessitate an iridectomy during the quiescent stage, as a prophylactic measure against secondary glaucoma.

Relative Frequency of Various Cases

Many writers, including Pockley and Gifford, have drawn attention to the widely varying tables published by those observers who have attempted to estimate the relative commonness of different types of iridocyclitis. We should, of course, expect considerable diversity of results in view of the fact that these researches have been undertaken in various climates, among several social strata, and at different periods. With regard to this last consideration of time, there is overwhelming evidence that syphilitic iridocyclitis has, in most countries, become progressively rarer in the last fifty years. Equally reasonable explanations might perhaps be provided for some of the other discrepancies between the different series. Nevertheless, it is quite certain that many cases would have been classified in several different ways, according to which clinic they had happened to attend. The enormous influence assigned to tubercle in European countries requires no further comment. Teeth are insignificant in some series and predominant in others. Cobbledick and Dunn found that gonorrhoea was by far the commonest cause of iritis in their male patients. My own experience agrees with theirs. In the second series of Irons and Brown, numbering 100 cases, only one was regarded as gonococcal. Most writers confess ignorance of the cause in 10 to 40 per cent. of their cases, but Irons and Brown in their first series of 100 were only once baffled. Halliday, on the other hand, frankly admits that the cause was undetermined in 70 per cent. of his series of over 200 cases.

Matters of General Agreement

Although increase in knowledge has apparently added to the difficulties of diagnosis, there has, on the whole, been a notable advance in the last twenty years. The average ophthalmologist of to-day may admit uncertainty as to the main cause of iridocyclitis in a higher proportion of his cases than would have seemed obscure to his predecessor. The number of his positive errors in diagnosis, however, will be smaller, provided that he cares to avail himself of other observers' collective experience. In spite of many conflicting opinions, the number of well-supported clinical observations goes on accumulating. Non-traumatic iridocyclitis as a complication or sequel, whether rare or common, is by general consent associated with the following conditions: gonorrhoea, syphilis, tubercle, herpes zoster, typhoid, influenza, septicaemia, malaria, leprosy, and diabetes. A few observers (Forster, etc.) have reported it as arising in the course of rheumatic fever, but, in the absence of repeated confirmation, it is safer to regard such isolated cases as coincidental. Halliday is convinced of its connexion with arthritis deformans. Gilbert and von Herrenschwand have described a rare but distinct group of " ophthalmia lenta " cases, in which subacute endocarditis leading to progressive anaemia, splenic enlargement, fever, and malaise is associated with bilateral hypopyon iridocyclitis in young adults. Now in a considerable proportion of iridocyclitis cases the most careful investigations will reveal none of the above-mentioned causes. Even if the list of causes be extended to include tropical varieties, and such debatable factors as gout and rheumatism, there will still be a large group whose aetiology has yet to be determined. It is not surprising that such a group should inspire a vast quantity of careful research which will continue until the problem is solved. Unfortunately that happy conclusion is not yet in sight, nor can it be hastened by the extravagant claims that have often been put forward.

General Theories of Causation

In the absence of exact knowledge the residual group of cases to which I have just referred has undergone manifold interpretation, but I shall mention only three schools of opinion:

1. Those who consider that tubercle accounts for them.
2. The focal sepsis believers, among whom the teeth are most commonly blamed. Other organs or tissues suspected are the tonsil, nasal sinuses, gall-bladder, genito-urinary tract (non-venereal infections), appendix or other parts of the alimentary tract, and skin.
3. Those who confess uncertainty and await further knowledge.

Before mentioning the animal experiments individually, I shall briefly recapitulate what appear to be the main factors in the production of metastatic iridocyclitis according to modern theories:

1. A noxious substance, which may consist of (*a*) bacteria ; (*b*) bacterial endotoxins or exotoxins ; (*c*) some end-product of reaction between the bacteria and its host's tissues ; or (*d*) material not derived from bacteria at all.

2. The conveyance of such a substance from its focus to the eye by blood vessels or lymphatics.

3. Alterations in the eye itself, rendering it more susceptible to infection. One example of such an alteration is the trauma which can precipitate an attack of interstitial keratitis (see Hildebrand, etc.). This is, of course, a crude example, and no doubt there are innumerable possibilities of subtler eye changes to which the name *allergic sensitization* is commonly applied.

4. Adaptation on the part of the organism so that it becomes more noxious to the uveal tissue. The resulting changes, of course, may be far too delicate to allow detection by any microscopical or cultural method within range of our technique. This hypothetical adaptation is known as *elective localization*.

Animal Experiments

Some of the recent work recalls Wessely's corneal experiment. When this observer injected heterologous serum into the cornea, he at once noted a moderate reaction lasting for two weeks. Two weeks later, injection of the other eye with the same antigen evoked a violent inflammatory reaction in the substance of the cornea ("keratitis anaphylactica"). Levy, Steinbugler, and Pease tried to produce iritis in rabbits by injecting bacteria into lymphatic vessels, but all the animals died without showing eye lesions. Uveitis in animals has been reported as a sequel to the following operations, performed chiefly on rabbits.

A. Intraocular injection of
- (1) Toxins extracted from staphylococci and streptococci (Woods and Stoddard).
- (2) Glycerinated tuberculin after previous sensitization (Lagrange).
- (3) Foreign protein after previous general sensitization by intravenous injection of the same substance (Brown).
- (4) "Non-virulent" organisms—for example, *Staphylococcus albus*, into the opposite eye (Marchesani).

B. Intravenous injection of
- (1) Cultures of streptococci and other pathogenic organisms (Rosenow, Haden, Meisser and Gardner, Brown and Dummer).
- (2) "Non-virulent" organisms (von Szily).
- (3) Toxins derived from ferment-producing bacteria—for example, *B. prodigiosus* (Guillery, Woods).
- (4) Foreign protein after previous sensitization of the eye by intraocular injection of the same substance (Brown).
- (5) Yeast (Stock) and various proteins (von Szily).

The last item on this list naturally evokes these questions: If uveitis can really be produced by the intravenous injection of a foreign protein chosen at random, are not most of these other experiments irrelevant or inconclusive? Are we not compelled to suppose that experimental uveitis has time after time been attributed specifically to toxins and bacteria when it was in fact merely a result of non-specific protein shock? According to Rosenow's results, however, the problem is not so simple as that. He reported that when 222 rabbits were injected with streptococci from 85 cases of acute appendicitis only 1 per cent. developed eye lesions; on the other hand, ocular inflammation arose in 41.6 per cent. of 272 others injected with organisms taken from the various infective foci of eighty-seven patients suffering from uveitis. Haden's results were of similar import. Nickel went further. In his experiments, streptococci selected from *acute* foci gave twice as many positive results as did those that were taken haphazard. Rosenow had already published work showing that the incidence of eye trouble from the injection of certain organisms could often be greatly enhanced by the repeated passage of these organisms through animals. To this form of adaptation he applied the term "elective localization." It is not yet possible to assess the value of all these experiments and the extent to which animal results can be expected to illuminate human pathology; but, whatever their ultimate significance may be, they have so far failed to provide us with a cure for the obstinate cases.

Heterochromic Cyclitis

One example of mysterious aetiology is provided by a group of cases in which, as the above name implies, bleaching of the iris and limitation of the disease to one eye are the characteristic features. In this type of iridocyclitis pain is conspicuously absent. Synechiae are unusual. Ciliary flush is often lacking and complicated cataract is almost invariable. The dots of k.p. tend to become so large that they can easily be seen without the aid of a loupe, although they do not attain to the huge size of tuberculous "mutton fat" deposits. The affection seems to be equally common among the two sexes. Lutz thought that brunettes were more susceptible than blondes. Fuchs expressed the opinion nearly thirty years ago that the heterochromia precedes and predisposes to the cyclitis. Recently Williamson-Noble has speculated as to whether cyclitis may arise from deprivation of trophic sympathetic fibres. I am aware that paralysis of the cervical sympathetic in association with heterochromia is not unknown, but I suspect that it must be exceedingly rare. I have seen numerous cases of heterochromic cyclitis, but none exhibited Horner's syndrome. It is, however, certain that this form of cyclitis is insidious, and that its early stages might well escape notice in perfunctory examination. Moreover, there is no need to credit heterochromia with any pathognomonic significance. Bleaching is a well-recognized phenomenon in many cases of glaucoma, and in iridocyclitis from various causes, especially herpes zoster. It is not uncommon as a senile change in the absence of any disease, and may effect one eye more than the other, or even exclusively. Senile scattering of the pigment layer is almost universal, but extensive and irregularly distributed atrophy of the mesodermic layers is by no means rare. When marked bleaching of one iris is associated with numerous pigmented spots on the back of the cornea, and the presence of broken, frayed iris fibres near the pupillary border, iridocyclitis is closely simulated. The proper use of a slit-lamp will immediately settle any doubt in the diagnosis of such a case. Heterochromia may also occur as a congenital condition or as a result of trauma.

Obstinate Iridocyclitis in Females

Some of the most distressing cases in ophthalmic practice are those middle-aged or elderly women who suffer from recurrent attacks of iridocyclitis without any obvious cause. In nearly every case of this kind the second eye is sooner or later implicated. Although pain is not, as a rule, very severe, there is in most instances progressive damage to sight from posterior synechiae, and from obscuration of the pupil by plastic exudate. Peripheral anterior synechia is another dangerous complication to which prolonged mydriatic treatment renders these patients liable. Often it will be found that the patient's teeth had all been removed many years before, and that the most careful search for a septic focus or general disease proves unfruitful. Every ophthalmic surgeon, however resourceful, encounters such cases, in which his utmost efforts meet with failure. The fact that this type of case occurs far more often in women, and that it most commonly begins during or after the menopause, has been noted by Jocqs, Galezowski and Berche, and others. Perhaps its development is facilitated by debris from the involuting sex organs.

Treatment

Apart from the recognized use of heat, mydriatics, and other local remedies in iridocyclitis, most people would favour the elimination of a manifest septic focus unless they had reason to believe that this procedure was unduly mutilating, or constituted a danger to life. When no septic focus is detected, and every test has proved negative in a patient suffering from repeated attacks, a choice of general treatments has to be made. Salicylates are still regarded as valuable by a number of clinicians. Injections of milk have recently been tried, with the object of stirring up the resistive powers of the patient by mild protein shock. Some advocates of this method believe that any success attained by the use of tuberculin, whether in tuberculous or in non-tuberculous cases, should be ascribed to the protein as such, rather than to any special property of the vaccine. I have had the opportunity to examine a number of recurrent iridocyclitis patients treated with milk, but I was not convinced that any of them derived benefit. To become thoroughly established, this or any other new form of iridocyclitis treatment must supply unmistakable results over a long period, because this is a disease whose severity is extremely variable. Patients with iridocyclitis of undiscovered origin do not necessarily get recurrences. I have notes of several such cases in which periodical observation every few months has revealed no relapse for periods varying between three and six years. Admittedly one cannot guarantee that they will never recur; but it is in the meantime permissible to point out that, if this prolonged immunity had happened to follow upon curettage of the cervix, tonsillar enucleation, or removal of teeth, they might have been claimed as further examples of iridocyclitis resulting from focal sepsis. During convalescence from influenza there is a characteristic bilateral iridocyclitis which responds very well to treatment, and does not recur.

The Need for Clinical Detail

New discoveries in bacteriology, biochemistry, and other sciences relating to medicine do not lessen the need for care in clinical scrutiny. Let us by all means make full use of the pathologists and other special workers who are readily available in every large town. There is, however, a danger that the indiscriminate request for a Wassermann reaction, differential white cell count, tuberculin test, analysis of excretions, and *x*-ray photography, at the outset of every case of iridocyclitis, may come to be regarded as more important than the proper routine examination of the eye itself. Patients are often subjected to a long series of laboratory investigations without having had their vision recorded. I have seen pretentious remedies prescribed for people whose second eye displayed large dots of undetected k.p. Sir Walter Langdon-Brown, in the course of his Sir Charles Hastings Lecture this year, has rightly reminded us that "bacteriology has not brought us all the gifts anticipated." He is justified in complaining that "some laboratory teachers seem to regard medical practice as only suitable for their third-class man." Happily there are signs that the prestige of clinical work is no longer on the wane. There are probably more people to-day than there were ten years ago who realize that the manipulation of a pipette is not necessarily more difficult than the proper use of the ophthalmoscope, and that unfamiliarity with Donnan's hypothesis is less to be deplored than slovenliness in clinical work. We should not forget what shrewd discoveries were made by clinicians in former days. Tabes came to be regarded as syphilitic long before the emergence of the spirochaete. Galezowski wrote that "rheumatic iritis non-gonorrhoeal is a rare thing," as long ago as 1867, at which time the gonococcus was unknown. The examination of the living eye will continue to yield fresh secrets. Only a few years ago Vogt was by such methods enabled to demonstrate the important and interesting capsulo-cuticular subdivision of glaucoma. Distinctive types of iridocyclitis are already recognized in several diseases, and clinical vigilance is still needed if we are to achieve further differentiation.

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HYDRATED MAGNESIUM TRISILICATE IN PEPTIC ULCERATION

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Synthetic magnesium trisilicate ($Mg_2Si_3O_8\ nH_2O$) is a tasteless white insoluble powder, possessing adsorbent and antacid properties of particular value in the treatment of gastric hyperacidity and chronic peptic ulceration of the stomach, duodenum, and jejunum. As an adsorbent it far transcends bismuth salts, magnesia, aluminium hydroxide, prepared chalk, and other medicaments in common use in these conditions. In Table I are given

TABLE I.—*Adsorption Powers of Common Antacid Substances*

Adsorbent	Potency (Weight of Methylene-blue Removed per gram of Substance Tested the Saturation Poi
Magnesium trisilicate (synthetic sepiolite Type 11)	176
Ditto (allowing for loss on ignition)	244
Aluminium hydroxide (*B.P.C.*)...	Less than 1
,, ,, ("alocol")	2
Bismuth oxycarbonate (*B.P.*)	Less than 1
Calcium phosphate (tribasic, *B.P.*)	0
Chalk (prepared, *B.P.*)	3
Kaolin suspended in aluminium hydroxide ("kaldrox")	1½
Kaolin suspended in aluminium hydroxide ("kaomagma")	2
An amount of "kaldrox" containing 1 gram of kaolin	8
An amount of "kaomagma" containing 1 gram of kaolin	10
Kaolin (*B.P.*)	12
,, (purified "colloidal")	14
"Maclean's powder" (*B.P.C.*)	0
,, ,, (proprietary)	0
Magnesia (proprietary tablets)	0
Magnesium hydroxide (*B.P.C.*)	Less than 1
,, oxide (heavy, *B.P.*)	0
,, ,, (light, *B.P.*)	Less than 1
Talc (purified, *B.P.C.*)	3

the relative adsorbent powers of such compounds, expressed as milligrams of methylene-blue removed by 1 gram of each substance.

Adsorption of Histamine

As described in a previous paper,* the range of its adsorptive affinities covers all basic dyes and in less degree many acidic ones also. It includes certain proteins, proteoses, food poisons, bacterial toxins, putrefactive amines, and alkaloids. Among the many interesting substances adsorbed is histamine; 1 gram of magnesium trisilicate removed 9 mg. of the acid phosphate at the clearance point in three hours from an aqueous solution. The diazo-reaction and the response of the virgin guinea-pig's uterus were used as tests for the completeness of the adsorption. More detailed study with dyes indicates that at the saturation point a much greater quantity would be taken up; if the time lag about to be discussed is taken into account, the weight of histamine removable per gram should probably be doubled again.

Histamine is a product of protein putrefaction, and in certain states of intestinal stasis can be produced from its parent substance histidine by the bacteria of the small intestine. When injected subcutaneously, it causes a flow of acid gastric juice—a phenomenon which is the basis of the histamine test meal, and may have an important bearing on the causation of hyperchlorhydria. Although substantial adsorption from aqueous solution commences as soon as the trisilicate is added, an even greater secondary adsorption follows and continues for a week or more.

Delayed Adsorption

This latency is of practical importance. It permits a continuous adsorption therapy on a scheme of intermittent dosage, the substances adsorbed during the first three hours following ingestion being insufficient to satisfy even one-half of the total adsorptive affinities of the trisilicate. This is illustrated by the data in Table II, which relate to a variety of dye concentrations in the supernatant fluid.

TABLE II.—*Illustrating Delayed Adsorption*

Sample	Methylene-blue (mg.) adsorbed per gram of the Magnesium Trisilicate	
	After 3 hours	After 7 days
1	40	100
2	50	172
3	60	169
4	108	167
5	113	218
6	121	160
7	124	208

Experiments with powders of different grades indicated that the lag was not determined by the size of the particles, provided that the whole would pass a 200-mesh sieve. It was still observable in magnesium trisilicate which had been allowed to stand under water for a week; therefore it cannot be explained as due to progressive hydration of the silicate. One gram (ignited weight) removed 244 mg. of methylene-blue in seven days (saturation point determination). A similar amount of trisilicate was left under distilled water at room temperature for the same period; methylene-blue was then added to secure a concentration and total equal to that of the dye in the control tubes. During the next three hours only 126 mg. of dye were removed, but a week later the amount adsorbed was 242 mg., a close approach to the control figure

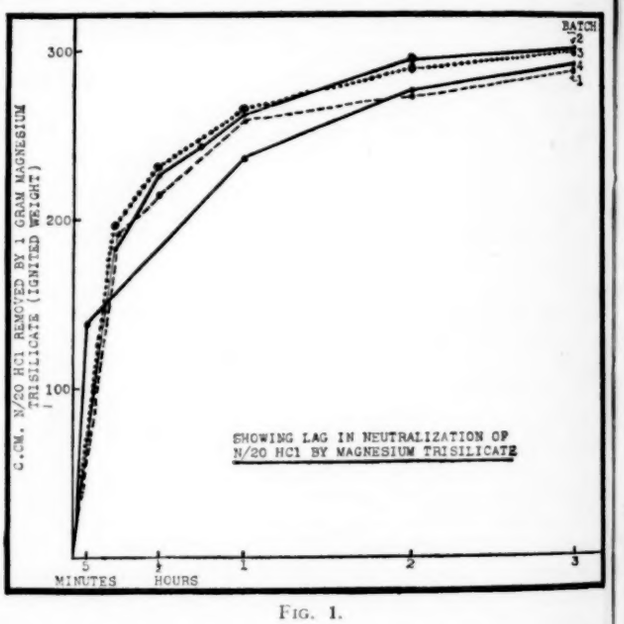

FIG. 1.

* The first of this series of three articles appeared on January 25th, p. 143, and the second on February 1st, p. 205

Antacid Value

As an antacid, 1 gram (ignited weight) of the trisilicate neutralizes 310 c.cm. of N/20 HCl, the approximate equivalent of normal gastric juice. The ultimate interaction is a chemical one, producing magnesium chloride and an insoluble residuum of hydrated silica. Neutralization proceeds with a lag analogous to that observed during the adsorption of methylene-blue. A rapid initial neutralization uses up 75 to 80 per cent. of the available magnesium during the first hour. A slower secondary neutralization utilizes the remaining 20 to 25 per cent. of magnesium at a steadily diminishing rate. The process is substantially complete in three or four hours, but a trace amounting to 0.5 per cent. of magnesium remains undissolved even after a week.

The magnitude of this lag is shown clearly in Fig. 1, where neutralization curves are given for several different batches of material individually prepared. The quick primary neutralization and the progressive secondary one make it possible to secure a continuous antacid effect throughout the whole normal period of gastric digestion by the administration of a single dose. The validity of this deduction was tested by gastric analysis.

An ordinary stomach tube was passed, and the resting juice was sampled (acidity = 0.13 per cent. HCl). Three grams of the trisilicate suspended in 4 oz. of water were then introduced through the tube. One hour later the stomach was evacuated as completely as possible, and its contents were quickly filtered (acidity of filtrate = 0.11 per cent. HCl). The washed residue (0.19 gram) contained only a small portion of the remains of the trisilicate administered, but on standing in contact with an excess of N/20 HCl for a week it neutralized 12.4 c.cm. of the acid. The residue recovered from another individual with similar acidity controls neutralized 9.6 c.cm. N/20 HCl.

Clearly magnesium trisilicate after remaining in the stomach for an hour still retains antacid potentialities, even when there is a positive acidity in the gastric juice before the introduction of the trisilicate and at the time of its removal. The effect of a small dose of the trisilicate on the standard test meal curve is demonstrated in Figs. 2, 3, and 4.

Further details from a series of cases appear in Table III. Reduction in acidity is apparent throughout the whole three-hour period in each instance, but is most marked during the first one and a half hours. With the dosage used (35 grains, ignited weight basis) acidity was kept down to a subnormal figure whenever the maximum acidity in the control test meal was not greater than 0.28 per cent. With higher degrees of hyperchlorhydria up to 0.33 per cent. the trisilicate kept the acidity down below normal for one and a half hours, but some rise occurred later. At extreme figures even up to an acidity of 0.41 per cent. the antacid action was perceptible throughout the whole three-hour period, but the dose used was insufficient to prevent some degree of hyperacidity in the earlier phases as well as in the later ones. It seems probable, therefore, that the dosage for full control should be 35 grains three-hourly for acidities up to 0.3 per cent., a similar dose two-hourly for acidities between 0.3 per cent. and 0.35 per cent., and a higher dose for extreme cases.

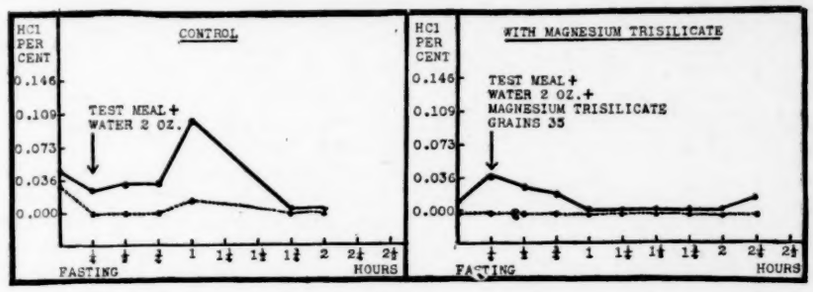

FIG. 2.

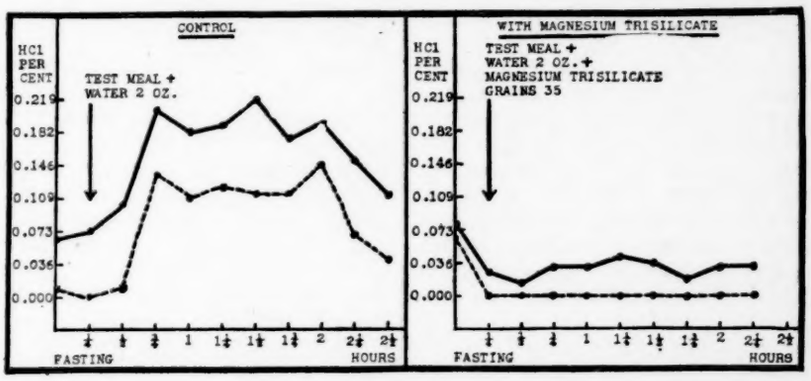

FIG. 3.

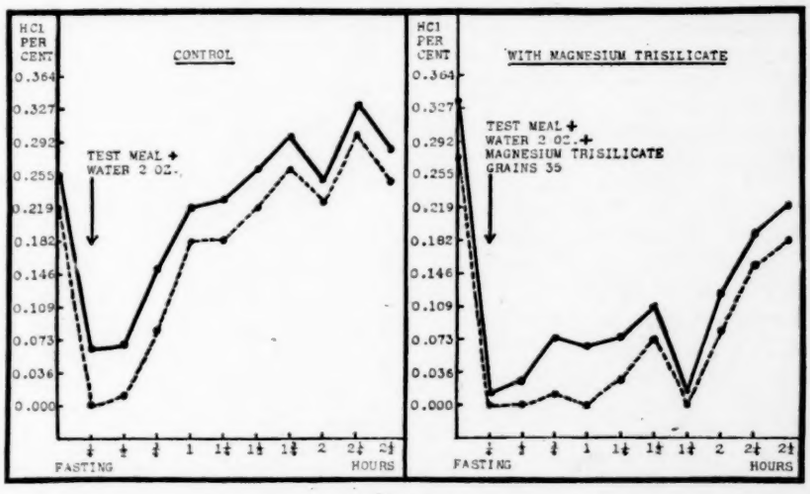

FIG. 4.

Clinical Potentialities

The presumptive suitability of this substance for the treatment of chronic peptic ulceration in the stomach, duodenum, and jejunum depends on a particular combination of properties:

1. Its antacid power is sustained for hours even in the presence of an excess of acid. Not only does this facilitate the continuous control of hyperchlorhydria in the gastric contents as a whole, but it furnishes a basis for a local antacid therapy in the floor of the ulcer itself. In the presence of acid the trisilicate acquires a gelatinous consistency, and if any of the mass lodges in the ulcer crater it will progressively neutralize the acid which diffuses through it. It should not be impossible, there-

fore, to secure a local hypochlorhydria at the ulcer site, even when the acidity in the main gastric contents is high.

2. Its adsorbent power is sustained, and cannot be exhausted in a few hours or even in a few days. For this reason it cannot be saturated with foodstuffs adsorbed from the gastric contents. A great reserve will always be left for the removal of soluble necrotic products at the ulcer site and of toxic substances in general.

3. It has strong antipeptic powers available for the protection of the ulcer base from destructive digestion. Since its adsorptive action is sustained, and cannot quickly be used up, trisilicate arrested in the crater should establish a local pepsin-free zone even when peptic digestion is proceeding freely in other parts of the stomach.

4. As its antacid power is utilized, hydrated silica is liberated in a form possessing strong adsorptive affinities for pepsin, food poisons, and other substances.* This activity of the end-product intensifies the adsorbent effect of the parent substance, magnesium trisilicate.

5. It can be given in large doses without disturbing the general motility of the digestive tract. It does not cause either constipation or diarrhoea.

6. No matter how great a quantity may be given it cannot reduce the gastric reaction materially below the neutral point.

7. Being completely insoluble in water any unused excess is voided in the stools. It cannot be absorbed, and so produce direct alkali poisoning.

TABLE III.—*Effect of Synthetic Magnesium Trisilicate on the Fractional Test Meal Curve*

Case	Resting Juice % HCl	Maximum Acidity (% HCl Test Meal)			
		1st Period (0 to 1½ hours)		2nd Period (1½ to 3 hours)	
		Control	Using Trisilicate	Control	Using Trisilicate
Normal	0.08	0.17		0.15	
1	0.01	0.10	0.04	0.01	0.00
2	0.08	0.22	0.04	0.19	0.02
3	0.19	0.28	0.09	0.25	0.15
4	0.33	0.30	0.11	0.33	0.22
5	0.25	0.32	0.14	0.32	0.26
6	0.27	0.36	0.28	0.36	0.32
7	0.31	0.41	0.30	0.38	0.37

Illustrative Cases

Fifteen patients in whom the existence of chronic peptic ulceration in stomach, duodenum, or jejunum had been established by clinical examination, *x*-ray visualization, and by the association of hyperchlorhydria, with evidence of high alimentary bleeding, were treated with synthetic magnesium trisilicate. No other antacid preparation was employed, either in the form of buffer salts or of alkalis. The patients were kept in bed on two-hourly feeds. As soon as pain was under control, and tests for occult blood in the stool were negative, a three-hourly regimen was substituted. Feeds at first consisted of milk prepared with Irish moss, custard, junket, cream, milk jelly, egg beaten in milk and proprietary milk foods with the addition of a little orange juice, grape fruit juice, vegetable purée, and marmite as soon as all pain had disappeared.

The dosage of magnesium trisilicate was kept low in the hope that a sufficient acid-free and pepsin-free zone might be established locally in the ulcer crater, as already discussed, without there being any necessity to neutralize the gastric contents as a whole. The clinical results encourage one to believe that such actually was the case. The preparation of magnesium trisilicate used was magsorbent, which on drying lost 10 per cent. of moisture, and on ignition an additional 15 per cent. of more closely combined water. It was given in doses ranging from 7 to 28 grains midway between each feed, so that the patients received only 5 to 21 grains of the anhydrous substance at a time. These are relatively small doses when compared with the data in Table III for the control of the acid response to a standard test meal. Nevertheless they were adequate to secure satisfactory clinical results.

In only one instance did any persistent difficulty arise. The patient was a man aged 38, with recurrent deep duodenal ulceration confirmed radiographically and with an exceptionally severe hyperchlorhydria, the total acidity rising above 0.4 per cent. The full 21 grain dose was required to control his pain symptomatically, and seven weeks' treatment was needed to rid him of his pain permanently and of traces of "occult" blood from the stool.

In every other case the desired result was obtained with doses not exceeding 16 grains (anhydrous weight), but with very high acid figures it would appear advisable to use a higher scheme of dosage. Half an hour before each feed one to four teaspoonfuls were given (dose determined by bowel action) of an emulsion of paraffin in a watery dispersion of colloidal kaolin, in order to eliminate attrition at the ulcer site and impedance at the pylorus and duodeno-jejunal flexure. Regular bowel action was maintained carefully, colon lavage being used as a rule in preference to purgatives.

Three brief case histories will suffice to indicate the type of patient treated.

CASE I.—*Duodenal Ulcer*

C. H., aged 24, with five years' history of attacks of pain one to one and a half hours after meals, relieved by food. Occasional vomiting. An *x*-ray photograph in May, 1934, showed deformity of duodenal bulb. Another in September, 1934, confirmed it. The test meal revealed a moderate hyperchlorhydria, no gastric delay.

Date	Occult Blood Test (Faeces)		Pain	*X*-Ray
	Guaiac	Haematoporphyrin		
October 15	2+	2+	+	Duodenal defect
„ 18	2+	2+	+	
Magnesium trisilicate commenced				
October 25	2+	2+	–	
„ 29	+	2+	–	
„ 30	+	+	–	
November 2	–	+	–	
„ 7	–	–	–	
„ 12	–	–	–	Normal
„ 14 (discharged)	–	–	–	

CASE II.—*Gastric Ulcer*

W. E., aged 28, had recurrent attacks of epigastric pain half an hour after meals. There had been severe haematemesis and a secondary anaemia. There was well-marked hyperchlorhydria, but no gastric delay.

* *British Medical Journal*, February 1st, p. 205.

Date	Occult Blood Test (Faeces)		Haemoglobin (Blood) Per Cent.
	Guaiac	Haemato-porphyrin	
September 23—haematemesis			(No iron or transfusion given)
October 9	2+	2+	38
,, 13	2+	2+	39
,, 15	+	+	38
,, 16	+	+	36
,, 19 magnesium trisilicate commenced	+	+	38
,, 20	−	+	45
,, 21	−	−	55
,, 24	−	−	56
,, 26	−	−	55
,, 31	−	−	60
November 5	−	−	70
,, 9	−	−	75

CASE III.—*Jejunal Ulcer*

J. B. B., aged 48, had suffered from dyspepsia since 1925. In 1927 appendicectomy was performed. In 1930 an investigation revealed hyperchlorhydria and gastric bleeding. In 1931 he had posterior gastro-jejunostomy for a chronic prepyloric ulcer. In 1933 the ulcer was still active, and a partial gastrectomy was undertaken. In 1934 there were daily bouts of left epigastric pain, not closely related to meals. The patient had severe constipation, general exhaustion, and loss in weight. An *x*-ray examination showed the deep crater of a jejunal ulcer. There was much occult blood in the faeces.

On the routine treatment previously outlined, and a dose of 5 grains (anhydrous weight) of the trisilicate between every feed, the pain quickly disappeared and the general condition improved. Although the pain had recurred daily for more than six months, he was able to start convalescence with a pain-free abdomen and a radiologically normal jejunum after sixteen days of treatment.

The clinical results were equally satisfactory in the remaining cases, and further detailed descriptions would be wearisome. Synthetic hydrated trisilicate of magnesium quite clearly supplied an effective medicinal control for all. The special features of its employment are: (1) The combination of three therapeutic actions in a single substance—namely, antacid, antipeptic, and antitoxic, each of which fulfils a useful role in the stomach and duodenal bulb. (2) A sustained action whereby hydrochloric acid, destructive ferments, and toxins can be removed continuously for several hours after the administration of a single dose. (3) The possibility of a local therapy at the ulcer base independently of changes occurring in the gastric contents as a whole. (4) Freedom from the risk of inducing toxic alkalosis.

Summary

1. Synthetic hydrated magnesium trisilicate possesses antacid and general adsorbent properties, readily applicable to the treatment of chronic peptic ulceration and hyperchlorhydric dyspepsia (discussed more fully in the two preceding papers).

2. It differs from all other antacids in clinical use in the vigour of its adsorbent action, as measured by the methylene-blue method (Table I).

3. Its neutralizing action continues for several hours even in the presence of an excess of acid, and exerts a sustained control over gastric hyperacidity (test meal analyses, Table II, and curves).

4. This prolonged neutralizing action enables a minimum amount of mineral base to control hyperchlorhydria continuously. The quantity required is far below that which has been known to produce toxic symptoms of alkalosis. The trisilicate itself is insoluble in water and weak alkalis, so that any unused excess remains unabsorbed.

5. The possible local therapeutic action in the ulcer crater is discussed.

6. A series of successfully treated cases of chronic peptic ulceration is quoted in which the only antacid substance administered was synthetic hydrated trisilicate of magnesium.

OESTROGENIC ACTION OF COMPOUNDS OF THE ANDROSTERONE-TESTOSTERONE SERIES

BY

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AND

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It has been known for some years that extracts of testis and male urine may show oestrogenic activity,[1] but this has usually been ascribed to the presence in the extracts of oestrogenic substances, probably of the oestrone group, in addition to male hormone. The fact that large amounts of oestrone can be isolated from stallion urine by mild chemical treatment is, of course, strong evidence in favour of this view,[2] but a purely oestrogenic substance has never actually been isolated from other male mammals. It is now recognized that substances of a more or less similar chemical nature to oestrone may have some degree of oestrogenic power, even if their primary biological activity is of quite a different nature.[3] Further, it has been found possible to hydrogenate oestrone, which itself shows no male hormone activity, to a substance having male hormone activity but no oestrogenic power.[4] It is not unlikely, therefore, that substances having both male hormone and oestrogenic properties may occur naturally. The first male hormone obtained, androsterone, isolated from male urine by Butenandt[5] and prepared artificially from cholesterol by Ruzicka and his co-workers,[6] was found to be non-oestrogenic by the vaginal cornification test[7] and by a plumage test.[8] Butenandt and Kudszus,[9] however, have recently reported that *trans*-dehydroandrosterone, androstenedione, and testosterone cause opening of the vagina in the intact immature rat. The first of these substances is present in human male urine and has some male hormone activity (Butenandt and Dannenbaum).[10] Testosterone, however, isolated from testes by Laqueur and his co-workers,[11] is the most active male hormone so far described.

Saturated and Unsaturated Compounds

Butenandt's work provided the first evidence that naturally occurring compounds might show the activities of both ovarian and male hormones. The three compounds found to be oestrogenic by Butenandt are all unsaturated, and therefore more similar to oestrone than is androsterone, but certain saturated compounds of the series, including androstanediol (the dihydroxy derivative of androsterone), are also oestrogenic on the intact immature rat.[12] Moreover, androstanediol increases the size of the uterus and vagina of the adult ovariectomized rat.[13]

Further observations by us confirm and extend these findings. From the table it will be seen that most members of the androsterone-testosterone series cause

Substance	Total Amount given (mg.)	Effect on Vagina of Immature Rat	
		Normal	Ovariectomized
Androsterone	2	− (2)	
Androstanediol	2	+ (1)	
	4	+ (2)	− (1), + (1)
	5		+ (1)
Androstenedione	2	− (2)	
	2.5		− (1)
	3.0	− (1), + (1)	
trans-Dehydroandrosterone	2	+ (2)	− (1) + 1
	3		+ (1)
trans-Androstenediol	2	+ (2)	+ (1)
Methyl*trans*androstenediol	0.5	+ (2)	
	1.25		+ (1)
	1.5	+ (2)	
	2.0		+ (1)
Methylandrostanediol ...	0.5	+ (2)	
	1 25		− (1)
	1.6		+ (1)
3-Keto-17-methylandrostanol	0.6	+ (2)	− (2)
	1.24		+ (1)
Testosterone	0.125	− (1)	
	0.8	− (1)	
	2.0	− (1)	− (1)
	4.0	− (1)	
	6.0	+ (1)	
Methyltestosterone	0.4	− (1)	
	0.8	− (1)	− (1)
	2 0	− (1)	
	3.0	+ (1)	

Half of the total dose was given on two consecutive days to young female rats 30 to 40 grams weight. + means that the vagina became patent within six days, usually three to four days, after the first injection. Number of animals in each test is given in brackets. In all cases examined histologically opening of the vagina had been accompanied by cornification and by oestrous distension or enlargement of the uterus.

opening and cornification of the vagina and enlargement of the uterus of the immature rat—intact or ovariectomized—in doses comparable with those required to cause detectable growth of the prostate and seminal vesicles of the castrated male rat. The difference in oestrogenic activity between *trans*-dehydroandrosterone and its isomeride testosterone is remarkable. In view of the response of the ovariectomized animal, it is highly improbable that the oestrogenic action is exerted through some other endocrine organ (a similar effect is obtained on adrenalectomized ovariectomized rats, for instance), and the effect is presumably a direct one on the uterus and vagina. Whether or not transformation of the male hormone to oestrone or a similar substance takes place as a preliminary to its acting on the vagina and uterus, is impossible to say at this stage.

Oestrogenic Actions of the Male Hormones

We have also found that *trans*-dehydroandrosterone (1 mg. daily) will cause the appearance of female plumage in the Sebright bantam capon, an effect which can be produced by oestrone but not by androsterone.* (Callow and Parkes.[8])

In view of these results it seems likely that the oestrogenic action of testis and male urine extracts may be due, at least in part, to the presence of compounds exerting an oestrogenic action in addition to their primary male hormone action, rather than to the actual presence of oestrone or some other purely oestrogenic compound. The importance of this problem has been discussed by Parkes and Zuckerman,[14] and the isolation and identification of the oestrogenic substance or substances of human male urine, if other than *trans*-dehydroandrosterone, would appear to be a matter of pressing importance.

We are much indebted to Professor Ruzicka and Messrs. Ciba for supplies of the substances referred to above.

* The Sebright bantam cock is hen-feathered, male feathering appearing only after castration. On the basis of their experiment with androsterone and oestrone, Callow and Parkes[8] were inclined to believe that the hen-feathered condition of the normal male was due to the production of an oestrone-like substance by the testis, but in view of the above result it may equally well be due to the production of one or more of the oestrogenic male hormones.

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IMMUNIZATION BY THE ORAL ROUTE IN RESPIRATORY INFECTIONS

WITH SPECIAL REFERENCE TO INFLUENZA, COLDS, AND THEIR COMPLICATIONS

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Practicability of Oral Route for Vaccination Purposes

In recent years considerable interest has been aroused as to the possibility of utilizing the oral route for prophylactic immunization purposes not only against intestinal infections but against other general infections. There is now definite information on the value of the oral method in prophylactic typhoid immunization. The evidence, based on clinical and serological investigations on man, indicates that the oral method is just as efficient as the subcutaneous method, if not more so. Thus Hoffstadt and Thompson (1929)[1] have shown that agglutinins appear in the blood after three doses of a mixed typhoid and paratyphoid vaccine administered by the oral route on three successive days. They found that of ninety-three persons so treated 88.5 per cent. developed agglutinins for typhoid and a lesser number for paratyphoid bacilli as compared with 80 per cent. who, according to the literature, developed agglutinins after subcutaneous inoculation and 90 to 95 per cent. who show a positive Widal reaction after suffering from the disease. Pijper and Dau (1930)[2] have also confirmed from the results of their experiments the fact that the oral administration of typhoid vaccine produced agglutinins in man. These were found to be of the O (somatic) variety only. Krause-Shimkin (1931)[3] confirmed these results of Pijper and Dau. Ruge (1932)[4] has recorded a well-controlled experiment of oral vaccination compared with subcutaneous injection. The agglutinins against *B. typhosus* were actually higher in the orally vaccinated group after five

months than in the subcutaneously vaccinated series. Arnold (1933)[5] records results after the administration of bile and typhoid vaccine on three successive mornings. A group of sixty-one human beings showed agglutination in the serum after three weeks, the titre ranging from 1 in 40 to 1 in 320. All showed the presence of *B. typhosus* agglutinins.

Ross (1930, 1931, 1932),[6] in a series of experiments, has demonstrated successful immunization of rats against pneumococci by oral administration. These animals were protected against multiple lethal doses injected intraperitoneally. These experiments suggest the possibility of utilizing the oral method in immunizing human beings against pneumococcal infections.

The Splanchnic Reaction

Lloyd Arnold (1933)[5] analyses some of the factors involved in peroral vaccination, and points out that the oral method of introducing a vaccine may be regarded from a new angle in the light of certain recent investigations. He calls attention to the investigations that have been made on the reactions of the splanchnic system to bacterial invasion, which we shall briefly summarize, as they have a practical bearing upon the problem of peroral vaccination. Petersen, Mueller, and Boikan (1927),[7] using an automatic pump, injected dilute suspensions of bacteria intravenously into dogs over long periods of time (six to twenty-four hours). In these experiments they were able to reproduce the clinical picture of the onset and course of an acute severe infectious process, and, by means of an analysis of the lymph, were able to follow some of the chemical changes coincident with the clinical changes. From these experiments the authors suggested that the reactions which supervene can be divided roughly into five periods—namely: (1) the latent period; (2) the period of splanchnic stimulation; (3) the period of fluctuations, with cellular efforts to restore the equilibrium; (4) the period of maximum injury; and (5) the pre-mortal period.

During the initial latent period the bacteria injected into the blood stream produced no demonstrable changes, and were immediately removed from the blood by the reticulo-endothelial system, largely in the liver. The fixation or phagocytosis of the living bacteria causes stimulation of the tissues. This initiates the second phase, which is characterized by stimulation. During this phase splanchnic vaso-dilatation and splanchnic leucocytosis take place, lymphorrhagia occurs, together with increased concentration of protein in the lymph, sugar mobilization, reduction in lymph coagulability, the appearance of soluble liver protein in the blood stream, and increased phagocytosis by the reticulo-endothelial system. After this period of stimulation the third phase makes its appearance, and so on.

Mueller and Petersen (1927)[8] demonstrated that the splanchnic system of the body—that is, the gastro-intestinal tract and its glandular appendages with their associated blood vessels and lymph channels—is stimulated by the injection of a foreign protein into the body, as well as after bacterial infections, and that this stimulation differs only in degree and is comparable to the pure physiological stimulation that occurs after the ingestion of food. Further, Nedzel and Arnold (1931)[9] and Fisher (1932)[10] have demonstrated that the intestinal mucosa is not an impermeable covering, and is permeable to bacteria. The bacteria then become fixed, phagocytosed, and disintegrated by intracellular ingestion within the reticulo-endothelial system in the splanchnic region. In other words, the splanchnic reticulo-endothelial system is the real barrier against a systemic invasion from the alimentary tract.

Lloyd Arnold (1933)[5] accordingly suggests that the ideal practical application of active immunization by the oral route would be to introduce a vaccine through the intestinal mucosa, and then stimulate the body sufficiently to produce a reaction similar to the stimulation phase described by Petersen, Mueller, and Boikan (1927),[7] but not of sufficient intensity to be compared to an inflammatory reaction.

Prevention of Colds, Influenza, and Respiratory Infections

So far very few reports are to be found in the literature of attempts to prevent colds, influenza, and respiratory infections by the administration of oral vaccines. Rockwell, Van Kirk, and Powell (1935),[11] however, have investigated the efficacy of an orally administered vaccine in reducing the incidence of the common cold over two winters. The vaccine they used was prepared as follows:

> Bacterial cultures were sterilized and the bacteria separated, absorbed in starch, dried, and finally placed in capsules. The organisms contained in each capsule were: pneumococci, 25 billions; *Haemophilus influenzae*, 5 billions; streptococci, 15 billions; and *Micrococcus catarrhalis*, 5 billions. The capsules were administered on an empty stomach daily, with half a glass of cold water, for seven consecutive mornings, and thereafter once or twice a week during the season.

The effectiveness of the vaccine was judged by the average number of colds occurring in the vaccinated group when compared with their average during the preceding three years and with the average of "controls" not taking the vaccine. In the winter 1933–4 1,036 persons were included in the experiment, 500 being given the vaccine. In the succeeding winter 445 were given the vaccine and 469 others served as "controls." Comparing past experience with the experience of the experimental year, it was found that each treated group showed a larger decrease in the incidence of colds than its control group. Taking the statistics as a whole these groups had an average of 3.03 colds per person per year during the previous three years, while during the vaccine year their average was 1.3, a decrease of 57 per cent. The corresponding figures for the controls were 2.49 and 2.19, a decrease of 12 per cent. The essential decrease due to the vaccine is thus 45 per cent. in the first year. The statistics of the second year showed a decrease of 70 per cent. in the average number of colds in the vaccinated group as compared with a decrease of 26.3 per cent. in the control group. That is a comparable essential decrease of 43.7 per cent. in the second year.

Development of Specific Agglutinins to Pfeiffer's Bacillus

So far as we can ascertain from the literature no experiments have been recorded regarding the development of specific agglutinins to Pfeiffer's bacillus when vaccines of this organism are administered by mouth. In previous publications[12 13] we have shown that when Pfeiffer's bacillus is grown in bacterial symbiosis with *Anaeromyces bronchitica* in blood agar broth, not only is the growth and the virulence of Pfeiffer's bacillus thereby increased but a highly exalted toxin is also formed in the broth capable of producing, when injected into rabbits, a potent antiserum. This antiserum was shown to have a high agglutination titre, and contained complement-fixation bodies when tested against a Pfeiffer's bacillus antigen. Further, this antiserum was shown to have a definite neutralizing and protective effect in experimental animal infections with Pfeiffer's bacillus.

It occurred to us to try the effect of taking by mouth doses of this potent toxic vaccine with a view to ascertaining whether any specific immune bodies could be detected in the blood after oral administration, and

whether any toxic symptoms were produced. The vaccine was prepared as follows:

Five strains of Pfeiffer's bacillus along with a strain of *A. bronchitica* are grown together, in bacterial symbiosis, in blood agar broth flasks for seven days. At the end of this period the symbiotic broth culture is killed with 1 per cent. phenol overnight. It is then diluted with an equal amount of sterile saline so as to reduce the phenol content to 0.5 per cent. The vaccine is then tested for sterility.

One of us (E. T. T.) showed a slight trace of agglutinins in 1 in 10 dilution of his serum before oral administration. After four doses of 20 c.cm. of vaccine taken on an empty stomach every third day the agglutination titre of his serum rose to 1 in 80 complete agglutination and 1 in 160 partial agglutination. Six days later, after two further doses of 20 c.cm. the agglutination titre was found to have risen to 1 in 1,280. Having reached this high agglutination titre it was decided to ascertain the effect of a further dose of 20 c.cm. of oral vaccine, measuring the titre at shorter intervals.

Two days later the agglutination titre was					1 in 160
Four	,,	,,	,,	,,	1 in 2,560
Seven	,,	,,	,,	,,	1 in 5,120
Ten	,,	,,	,,	,,	1 in 2,560

It would thus appear that there is a definite tendency for the agglutination titre to drop during the first two days after oral administration, but that the agglutinins rapidly rise again on the fourth day and reach their maximum on the seventh day.

Subjective Symptoms after Oral Administration

One of us (R. T.) kept very careful notes of the toxic effects of the oral administration of such a vaccine. His serum was tested for agglutinins against a suspension of Pfeiffer's bacillus prior to oral administration, and showed no agglutinins in a dilution of 1 in 10. 20 c.cm. doses of oral vaccine were then taken on an empty stomach every two days until six doses (120 c.cm.) had been taken. Three days later, after completing six doses, the serum was tested for agglutinins. The serum showed definite agglutination in a dilution up to 1 in 80 and a trace in 1 in 160. The serum tested for complement-fixation bodies showed some binding in 2½ m.h.d. of complement only.

On the morning following the first dose of oral vaccine he had symptoms of a nasal cold coming on, with sneezing and a feeling of stuffiness in the nose. This, however, passed off during the day, and no cold developed. No symptoms were detected after the second dose. On the day following the third dose he noted general malaise, and slight toxic symptoms, with slight abdominal discomfort. After the fourth, fifth, and sixth doses he felt very general toxic symptoms and malaise, particularly after the last dose, when the symptoms persisted for three to four days.

Eleven days later a further series of six doses were commenced. After the first dose of this second series slight general toxic symptoms were again observed. Three days after the first dose a second dose of 20 c.cm. was taken by mouth. This was followed next day by general toxic symptoms, which lasted two days. It was then decided to wait a week before taking the third dose, as the symptoms suggested that the dose was either too large or being taken at too frequent intervals. At the same time, a week later, before taking the third dose the blood was again examined for the presence of agglutinins against Pfeiffer's bacillus. On this occasion the agglutination titre showed traces in 1 in 320 dilution of serum. For the third dose the amount of vaccine was reduced to 10 c.cm., and no symptoms were noted. The fifth and sixth doses consisted of 20 c.cm. at weekly intervals. No symptoms were felt after these intervals between the vaccine. A week later after the last dose there was definite agglutination up to a dilution of 1 in 640 and partial agglutination in a dilution of 1 in 1,280.

The Negative Phase

One of us (D. T.) took six doses of 20 c.cm. at intervals of two days. At the end of this course he felt ill, as if an attack of influenza was developing. These symptoms lasted for about twelve hours and then passed off quickly. The agglutination titre at the beginning of this course of oral vaccine was scarcely 1 in 10. At the end of the course the agglutination titre was 1 in 80. It was ascertained, however, that these broth cultures are very toxic even by mouth, and that one dose of 20 c.cm. should not be taken more often than about once in seven days. Otherwise negative phase follows on negative phase, and the desired increase in the agglutination titre is not produced.

Animal Experiments

It was found that 0.5 c.cm. of a living symbiotic blood broth culture of Pfeiffer's bacillus and *A. bronchitica*, injected intraperitoneally, killed white mice within twenty-four hours. Pfeiffer's bacillus was grown from the heart blood of the mice after death. Further, 0.5 c.cm. of filtrates, obtained by passing through a Berkefeld filter a four-day blood agar symbiotic broth culture of Pfeiffer's bacillus and *A. bronchitica*, when injected into white mice rendered them very ill for several hours, but did not kill them.

The two sera (E. T. T. and R. T.) which had shown a high agglutination titre against Pfeiffer's bacillus after oral administration were tested for their protective and neutralizing powers.

0.5 c.cm. of serum (E. T. T.) and 0.5 c.cm. of serum (R.T.) respectively were mixed with 0.5 c.cm. of a living forty-eight-hour symbiotic broth culture of Pfeiffer's bacillus, and the two mixtures each allowed to stand one hour in the incubator. At the end of this period two mice were injected intraperitoneally with each mixture. Both these mice showed no symptoms, and remained alive and well after forty-eight hours.

Two control mice, on the other hand, died. One injected intraperitoneally with 0.5 c.cm. serum, from a person who had not taken any oral vaccine, mixed with 0.5 c.cm. of the same forty-eight-hour symbiotic broth culture as above and incubated one hour, died during the night; the second mouse injected with 0.5 c.cm. of the forty-eight-hour symbiotic broth culture alone died overnight.

Prevention of Colds and Influenza with Oral Vaccines

The above results are significant, and indicate that specific agglutinins are formed to Pfeiffer's bacillus, and that antitoxins appear in the blood after oral administration of a killed carbolized symbiotic broth culture of Pfeiffer's bacillus. In order to avoid toxic symptoms whilst obtaining the maximum agglutination titre in the blood it would appear, however, that the doses of such a vaccine should be taken at about weekly intervals. We deduce that if agglutinins are formed to Pfeiffer's bacillus by the oral administration of symbiotic broth culture, the same would apply also to symbiotic broth cultural growths of pneumococci, streptococci, and *M. catarrhalis*. We have accordingly prepared a combined vaccine by separately growing Pfeiffer's bacillus, pneumococci (Types I–IV), streptococci, and *M. catarrhalis* in broth cultures in bacterial symbiosis with *A. bronchitica*.

One of us (E. T. T.) has taken four doses of this combined broth vaccine ranging from 10 to 20 c.cm. at weekly intervals. Five days after the last dose his serum

was tested for agglutinins against pneumococci and streptococci. No agglutinins were detected at the beginning of this course, but now, after four doses, his blood shows agglutinins for pneumococci in 1 in 40 dilution, and for streptococci in 1 in 80 dilution, thus indicating a definite agglutination response after the oral administration of such a combined vaccine. No toxic symptoms were observed with these doses at weekly intervals.

Secondary Organisms in Colds and Influenza

We record these results as they definitely indicate the practicability of the peroral method for prophylactic immunization against the various secondary pathogenic organisms associated with colds and influenza.

The importance of Pfeiffer's bacillus as a secondary organism in the respiratory complications of influenza and colds is now fairly conclusive. For although influenza and the common cold may in some instances be due primarily to a virus infection, all are agreed that it is chiefly the secondary organisms, particularly Pfeiffer's bacillus, pneumococci, and streptococci, etc., which determine the occurrence and severity of respiratory complications, and are the chief factor in causing the high mortality rate in influenza and in leading to serious chronic sequelae. The frequency of chronic nasal sinusitis due to pneumococci and Pfeiffer's bacillus after influenza and the common cold is now well recognized. It is also proved that many colds are caused primarily by pneumococci, Pfeiffer's bacillus, and other organisms.

Conclusions

The advantage of the oral route of administration over the subcutaneous method is obvious in that this method overcomes the practical difficulties associated with the latter. There is no doubt that there is a real need for such methods in public health work, when prophylactic immunization has to be applied to large masses of the population. Furthermore, it is much more convenient in every way to swallow a vaccine than to have it injected. A bottle of oral vaccine can be kept on the dressing-table in the bedroom of any individual, and the weekly dose can be swallowed in the evening, on an empty stomach, before retiring, the amount of time involved being only a few seconds. This weekly oral dose can be kept up all the winter without any trouble whatsoever, whereas the necessity of getting a medical man to inject vaccines weekly deters many people from trying such immunization.

The joint authors of this paper have been carrying out this procedure with regard to themselves since September, and we have the satisfaction of noting that we are keeping up our agglutinins to Pfeiffer's bacillus, pneumococci, and streptococci. None of us have had colds this winter so far, in spite of considerable exposure to infection.

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Clinical Memoranda

Haemolytic Streptococcus Gangrene

In 1924 Meleney[1] drew attention to haemolytic streptococcus gangrene as a clinical entity in a description of twenty cases occurring in China. He reported a further series of eleven cases in New York in 1930.[2] The condition is described as gangrene which develops with alarming rapidity and affects the skin and superficial tissues only, after small injury or apparently spontaneously. Haemolytic streptococci are the only organisms invariably found. Spontaneous haemolytic streptococcus gangrene of the scrotum has also been described.[3]

The condition is apparently rarely seen in this country. The case described below is typical, except for the destruction of deep tissues in the index finger.

Case Report

A farm labourer, aged 24, recommended by Dr. J. D. Macrae, Bonarbridge, was admitted to the Lawson Memorial Hospital, Golspie, on September 8th, 1935. The patient stated that on September 6th he worked all day in the harvest field and felt quite well. Apart from the usual abrasions and scratches received at his work he was unaware of injury to his hands. At 7 p.m. he suddenly felt sick and vomited. Shortly after going to bed he awoke with intense pain in his left hand; the hand and arm became rapidly swollen. At 5 a.m. on September 7th the pain became intolerable, and he went to see his doctor. Incisions were made in the dorsum of the hand then and again later in the day. Fomentations were applied, but in spite of energetic treatment the pain was not relieved and the swelling increased at an alarming rate. That night the patient suffered from much abdominal pain and sickness; on the following morning he was sent to hospital.

On admission he was gravely ill; the tongue was dry and furred, and herpes labialis was evident. The temperature was 103.6°, the pulse rate 104. The terminal phalanx of the left index finger was dark grey in colour and insensitive. Sero-pus oozed from the nail-bed and from incisions on the dorsum of the hand. The whole limb was enormously swollen, heavy, and useless. The skin was dusky purple, and bullae containing sero-pus were seen on the fingers, hand, and forearm. The appearance of the skin of the proximal arm gave no indication of the limit of the infection. On palpation the skin was hot and acutely tender; boggy areas were felt in the general brawny hardness of the upper arm and forearm. No definite lymphangitis or lymphadenitis was present.

Dr. R. G. Bannerman, from the pathological department, Royal Northern Infirmary, Inverness, reported that haemolytic streptococci were found in pure culture.

Treatment.—Routine treatment with salines, glucose, and collosol calcium was instituted. Anti-streptococcal serum (polyvalent) was given, 10 c.cm. intravenously on September 10th and 11th, and 10 c.cm. intramuscularly on September 11th and 12th.

The existing incisions were freely opened up, the successive bullae punctured, and all dead tissue removed. Antiphlogistine was applied, followed by antiseptic baths; later the raw areas were treated with metaphen 1 in 500 and dry dressings.

Progress.—On September 9th the skin and nail, complete like the finger of a glove, came away from the terminal phalanx of the left index finger, leaving the deeper tissues frankly gangrenous. The phalanx demarcated rapidly, and separated on the seventh day. Tissue destruction in the hand and arm was limited to the skin, which became lifted up by a sero-purulent exudate. This was demonstrated when pressure on the upper arm caused sero-pus to flow out of the incisions on the dorsum of the hand. On the seventh to tenth days sloughs separated, the temperature fell, and the general condition improved. Subsequently the patient made a good recovery, and in six weeks' time the wounds were practically healed.

Comment

The infection presumably originated from a small injury around the nail of this finger. Early incision is advocated as the best form of treatment, and doubtless the primary

treatment in this case contributed largely to the satisfactory recovery. The administration of polyvalent anti-streptococcal serum was apparently beneficial.

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Delayed Rash in Measles

The two cases I report below were diagnosed tentatively as measles from the beginning of the symptoms, but it was somewhat difficult to convince oneself, and the parents, that measles would develop, especially after the passing of six or seven days with no rash.

Case I.—Female, aged 8 years, developed catarrh, rise of temperature, and a cough on the evening of October 30th, 1935. The temperature, ranging from 101° to 103.5° F., the catarrh, cough, restlessness, and delirium on each night continued till the evening of November 10th, when measles developed, the rash then showing on the head and neck. Koplik's spots appeared on November 8th, and injection of the mucous membrane of the palate and mouth the day before. On the 9th a rash appeared behind the ears, but by the morning of the 10th this had disappeared. A very heavy rash was fully developed by the 11th, and did not fade till the 16th.

Case II.—Male, aged 9 years, first ill on October 31st, 1935, with temperature, catarrh, and some enlargement of the glands of the left anterior triangle. There was marked catarrh, suffusion of the eyes, and the temperature ranged from 100.5° to 104°, till on November 9th the measles rash developed on the face and behind the ears. The rash was fully developed by the 11th. Koplik's spots had appeared on the 8th. The rash was again very profuse, and did not die down till the 15th.

In both these cases the period of invasion lasted much longer than usual. The limits are said by Rundle, in *Ker's Infectious Diseases*, to be four to seven days. The boy's rash appeared nine days after the beginning of the symptoms, and the girl's eleven days after.

Neston, Wirral. ROBERT SELBY, M.B., F.R.C.S.Ed.

Presence of Copper in Gall-stones

While the occurrence of traces of copper in the human organism has long been known—and, in fact, its presence has been regarded by some as essential to the efficient action of iron in the production of the elements of the blood—yet its presence in any appreciable quantity does not seem to have been recorded. It was therefore thought that the following case was worthy of being put on record.

The patient was a man of middle age, suffering from gastric ulcer and cholelithiasis. A partial gastrectomy was performed and the gall-bladder was removed; it was found to contain eight faceted gall-stones, weighing in all 1,038 mg. The stones were found to be composed almost entirely of inspissated bile pigments (mainly bilirubin and biliverdin) and to contain no cholesterol. After the usual extractions with ether, chloroform, and hot alcohol there remained an appreciable quantity of a compound which was found to consist of copper in organic combination with bilirubin.

The copper was separated by incineration and identified by the usual reactions—blue colour with ammonia and brown precipitate with potassium ferrocyanide. The quantitative estimation was done by dissolving the ash from a weighed quantity of stone in dilute HCl, adding KI and titrating the liberated iodine with N/400 sodium thiosulphate. This showed copper to be present to the extent of 0.3 per cent., which gave the total amount of metallic copper in the gall-stones as 3.1 mg.

I am indebted to the Director-General of Medical Services, Ministry of Pensions, for permission to publish this note.

Queen Mary's Hospital, Roehampton, S.W.15. W. E. NEWELL, A.I.C.

Reviews

HAEMOCHROMATOSIS

Dr. J. H. SHELDON'S monograph on *Haemochromatosis*[1] contains more pages than the total number of reported cases of the disease. His justification, if any is needed, is found in the light thrown by this rare malady on fundamental questions of metabolism and constitutional pathology. Knowledge of facts in medicine grows continually, but wisdom often lingers for need of the synthesis of data into a coherent structure. The research worker may be unable from preoccupation or literary inability to describe the broad outlines of his subject, while the reviewer who has not personally handled the material may fail to distinguish the false from the true, the important from the trivial. Dr. Sheldon fortunately possesses the two talents. His research work on the mineral constitution of the organism is well known, and the present monograph shows his skill in marshalling facts. We hope that many of our readers will read this volume, for it is so printed and arranged that the gist of the book can be quickly read, and it is of interest not only to the pathologist but to all who are curious about the vagaries of the human constitution.

Haemochromatosis is characterized by deposits of pigments in the tissues and a tendency to cirrhosis of the liver and pancreas. The pigment is of two types: haemosiderin, an iron-containing pigment which is found especially in glandular tissues; and haemofuscin, a melanin pigment which is found especially in smooth muscle. There are reasons for believing that cirrhosis of the organs is not due merely to irritation by the deposits of pigment, but is an integral part of the disease. The important symptoms are pigmentation of the skin; diabetes, hepatomegaly, and a tendency to terminal jaundice, ascites, or cancer of the liver; and impotence and loss of hair, which are probably associated with the pigmentation of the testes and the pituitary gland. Now that the diabetes can be controlled by insulin, the hepatic complications will probably become the most frequent cause of death. It is a disease of the male sex, only about one in twenty cases occurring in females, and it rarely becomes manifest before the age of 35. In view of the occasional discovery of latent cases at an early age, and calculating also from the rate of accumulation of pigment in the tissues, it appears likely that the actual disease process begins in the first years of life. The disease has occasionally been familial and more rarely hereditary. Since the appearance of Dr. Sheldon's book Dr. R. D. Lawrence has published a pedigree which suggests that haemochromatosis may be a sex-linked hereditary disease transmitted by females and affecting mostly males (*Lancet*, 1935, ii, 1055).

Reviewing all the evidence Dr. Sheldon concludes that the disease is an inborn error of metabolism, comparable with alkaptonuria. The haemosiderin is not derived from the iron of the blood but from the tissues, and is the result of a congenital disturbance in the metabolism of the iron-containing respiratory ferments. The cirrhosis is the result of an associated tissue defect and is comparable with the hepato-lenticular degeneration of Wilson's disease. Dr. Sheldon's purpose in writing his monograph has been to provide for future students a complete summary of the records of haemochromatosis up to 1934, and one of the few judgements of his with which the reader will disagree is that in which he ascribes no permanent value to his hypotheses about the disease.

[1] *Haemochromatosis.* By J. H. Sheldon, M.D., F.R.C.P. London: H. Milford, Oxford University Press. 1935. (Pp. 382; 40 figures. 25s. net.)

ORGANIC CHEMISTRY

READ'S *Organic Chemistry*[2] deserves special notice for the skill and care bestowed on its preparation. Textbooks of organic chemistry as a rule differ from each other only in respect of the number of organic substances mentioned by name and the amount of detail relating to them. All suffer in a greater or less degree from a defect inherent in the nature of the subject—that is, that the substances calling for mention are so numerous that no space can be spared to describe them. Read's appreciation of this aspect of the subject has enabled him to repair the defect without unduly extending the size of the book. A close and understanding contact with the student is manifest throughout. Easy reading confers a value that is not to be overlooked. The arrangement of the subject-matter is pleasing. There is a historical section, including a chronological list of events in the development of chemical science. Explanations of reactions are frequently enlarged by cross-references to kindred matters mentioned on other pages. The importance of substances having an economic application is mentioned in statistical form. The student is assisted by instructions for making experiments, and is induced further to reflect on his reading by a set of questions appended to every chapter.

DISEASES OF THE SKIN

Die Hautkrankheiten is a textbook of skin diseases of a rather unusual character in that it is entirely devoid of illustrations.[3] Dr. ROHRBACH recognizes that good coloured plates (and how difficult they are to get!) are indispensable in such a work, but he contents himself with recommending his readers to consult well-known atlases of skin diseases. The author has practised dermatology for over twenty years, and feels compelled to give the results of his study to the world. He has produced a sound textbook which is compiled on the usual lines. First, there is a general description of the anatomy and physiology of the skin, the classification of skin diseases, their local treatment, and a good section on the influence of general conditions upon the cutaneous surfaces, such as the action of diet, of vitamins, of hormones, of light, and of shock therapy. He also discusses the influence of heredity and incidence of familial skin diseases, and here it is astonishing to find that he makes no mention of Dr. Cockayne's well-known and very interesting book on *Inherited Abnormalities of the Skin and its Appendages.*

Dr. Rohrbach's classification of skin diseases divides them into two great groups: those of which the cause is approximately known and those of whose origin we have as yet no explanation. Among those in the former division he includes the various manifestations of allergy. Some might consider him rather sanguine in thinking that our comprehension of the phenomena included under that head is sufficiently advanced to justify these diseases being classified as of known origin! One of the sections which we can commend particularly is that on the action of *x* rays on the skin both in health and in disease. It appears that recent researches have shown that the skin of children is less sensitive to *x* rays than that of adults. A single individual reacts to the same degree to *x*-ray irradiation all over his skin, but different individuals appear to react to some extent in different ways. It has been shown that various factors can raise the radiosensibility of the skin. Among these are hyperaemia, either raising or depression of temperature, and almost any form of local inflammation. Many observers have thought that when an attack of eczema or dermatitis is cured by *x* rays the skin becomes more resistant to a further attack than if it had been allowed to get well under the influence of topical applications of ointment, etc., alone, but Dr. Rohrbach does not admit that this is the case.

In general we may say that this is a sound but not an outstanding textbook on diseases of the skin. The author refers to the work of quite a large number of writers, but his patriotism is evinced by the fact that there is hardly any reference to the work of any dermatologist of other than Teutonic origin.

ROLE OF THE NERVOUS SYSTEM IN DISEASE

Dr. A. D. SPERANSKY, in advancing *A Basis for the Theory of Medicine,*[4] states that "it is essential to be quite clear on this subject." We must admit, however, that in spite of all the emphasis that the copious use of italics can lend we found this book far from clear. Its main thesis appears to be a protest against the lack of a synthetic outlook in pathology, and a claim for a better recognition of the integration of all bodily processes, pathological as well as physiological, under the control of the nervous system. It is true, as the author urges, that the central point of interest in medical progress shifts from time to time, and doubtless the new centre of interest is apt to be over-emphasized. That is almost inevitable; morphology, cellular pathology, and biochemistry have each in turn been intensively studied, and a due balance has not always been observed. It is also true that there is sometimes a tendency to take refuge in verbal mysticism—such as the blessed word, allergy. That the role of the nervous system in all pathological processes is worthy of more intensive study is undoubtedly true, and indeed such study is already giving important results. But we should hesitate to accept the author's contention that in disease there is an entirely "new type of nervous activity, the appearance of new reactions, not only unnecessary but directly harmful to the life of the individual."

We feel that the author lays claim to a degree of profundity which is not really justified, and that his point is not very clear, though he is an unconscionable time a-making of it.

RADIOLOGY OF THE COLON

A further volume on the clinical radiology of the digestive tract has appeared under the editorship of MM. MAINGOT, SARASIN, and DUCLOS.[5] The second edition of the volume on the stomach and duodenum was reviewed in our columns in June of last year. The work at present under notice deals with the radiology of the colon and appendix, and the information to be obtained by this method. Dr. Antoine Béclère, in an introduction, points out what remarkable advances in knowledge have been made in the past twenty years. These have come about in some degree from improvement in apparatus, but much more from a new technique.

The authors divide the stages of radiological examination of the colon into three. After adequate preparation of the patient an enema of 400 to 500 c.cm. of 12 per cent. of oxide of thorium is given to dilate the bowel and

[2] *A Text-Book of Organic Chemistry. Historical, Structural, and Economic.* By John Read, Ph.D., M.A., Sc.D., F.R.S. Second edition. London: G. Bell and Sons, Ltd. 1935. (Pp. 703; 87 figures. 12s. 6d. net.)

[3] *Die Hautkrankheiten.* By Dr. Richard Rohrbach. Dresden and Leipzig: T. Steinkopff. 1935. (Pp. 393. RM. 20; geb., RM. 21.50.)

[4] *A Basis for the Theory of Medicine.* By A. D. Speransky. Translated and edited by C. P. Dutt, B.A. Moscow: Jura Co-operative Publishing Company. 1935. (Pp. 418; 46 figures.)

[5] *Exploration Radiologique des Colons et de l'Appendice au moyen des Solutions Floculantes. Images de Muqueuses.* By Georges Maingot, Raymond Sarasin, and Henri Duclos. Paris: Masson et Cie. 1935. (Pp. 230; 203 figures. 200 fr.)

define its position and contours. After evacuation of the opaque enema further information is obtained by observing the folds of mucous membrane as they are defined by the residues of thorium, and finally air is pumped into the bowel so that the suppleness of the mucous membrane may be determined. Normal forms of mucosal folds are discussed and illustrated. Pathological pictures of the colon are described in terms of addition and encroachment ; by the former are meant extrusions of diverticula, by the latter inroads into the lumen and gaps formed in the continuity of opaque substance. The normal rectum shows longitudinal striae ; in the rest of the colon a variety of appearances is obtained owing to the degree of elasticity and pliability of the mucous membrane and the state of tonic contraction of the muscle wall. Abnormal appearances suggest irritation, exudation, thickening, or atrophy.

Beautiful illustrations accompany the text, showing stenoses, secondary infiltration, and the hyperplastic and exudative types of ulceration. In discussing diverticulitis the authors do not emphasize the great assistance of the strial picture, especially in those cases complicated by adhesions. The book is sumptuously produced, contains an extensive bibliography, and will be a standard work of reference to radiologists and teachers of radiology.

GRAPHIC METHODS IN CARDIOVASCULAR DISEASE

The second edition of "Electrocardiography and other Graphic Methods in the Diagnosis of Circulatory Disorders," by Dr. ARTHUR WEBER, contains a good deal of interesting matter.[6] To begin with, there is a description of the various methods by which graphic records may be obtained, including venous tracings and roentgen-kymography. There is also a discussion of the recording of the heart sounds. The author thinks he can demonstrate that the third sound which appears in the cardiac cycle in gallop rhythm is really an audible auricular sound, and not produced in the walls of the left ventricle. There is an interesting discussion of the diagnostic significance of the venous pulsation in the neck. The author points out the importance of effective auricular contraction, which produces effective filling of the ventricle, thereby stretching the wall and inducing efficient contraction.

In the section on electrocardiography the account of the theoretical basis is particularly good. The author inclines to the modern view that the right ventricle is responsible for the upward deflection in Lead I. The curve of ventricular hypertrophy is due, he suggests, to delay in the conduction of the impulse on the abnormal side, so that the sound side predominates at the beginning of systole. He looks upon most of the patients in whom alterations in the S-T phase are found as suffering from defective blood supply in the left ventricle. In some, however, the action of toxins, which may be temporary, is recognized. He does not consider that the results of experimental bundle-branch block can be applied to localized lesions in clinical cases. With regard to the origin of extrasystoles in the ventricles, he concludes that those which have an initial upward deflection in Lead I originate from the base of the heart or the right ventricle.

The book is interesting from many points of view. The technical discussion is clearly put forward ; the illustrations are good ; and there are many references, mostly to Continental work. The German, unfortunately, is somewhat difficult, but the book can be recommended to any cardiologist who is able to read it.

[6] *Die Elektrokardiographie und andere graphische Methoden in der Kreislaufdiagnostik.* By Professor Dr. Arthur Weber. Second edition. Berlin: J. Springer. 1935. (Pp. 183 ; 129 figures. RM. 15.60 ; geb., RM. 16.50.)

Notes on Books

Brewer's Yeast, its Uses in Nutrition and Therapy,[7] by Dr. J. SCHÜLEIN of Munich, is No. 35 of a series of monographs on advances in technology. The author gives a clear account of the chemistry of yeast, with particular reference to its content in vitamins and glutathione. He describes briefly the physiological and therapeutic effects that have been obtained by yeast administration to men and to animals. The monograph concludes with an adequate bibliography, and it constitutes a useful work of reference in a subject which has wide ramifications.

The second edition of *The Sanitary Inspector's Handbook*,[8] by Mr. H. H. CLAY, has appeared well within three years of the publication of the first, the exhaustion of which indicates that its merits are widely recognized. Advantage has been taken of this early opportunity for revision to make the alterations rendered necessary by changes in public health legislation. For example, the chapter dealing with procedure under the Housing Acts has been entirely rewritten to incorporate important provisions of the Act of 1935. Further technical details have been included, and the book has been increased in size by over forty pages. It affords a comprehensive, suitably illustrated, and well-documented survey of the whole growing field of practical and theoretical sanitary science, and may thus be recommended as a book of reference as well as a conveniently planned textbook for students. The author's effort to keep his material fully up to date is evidenced by the fact that the new Sanitary Officers (Outside London) Regulations, 1935, of the Ministry of Health, which only came into force on January 1st, 1936, receive mention.

The fascinating work entitled *Women East and West*[9] represents, as its subtitle indicates, the impressions during a world lecture tour of the sex expert the late Dr. MAGNUS HIRSCHFELD, whose death at Nice occurred last May, two years after the wilful destruction of his Institute of Sexual Science in Berlin. The book, which has been well translated by O. P. Green, is divided into four parts, devoted respectively to the author's experiences as observer and lecturer in the Far East, Indonesia, India, and the Near East respectively. Unlike most European travellers and residents in Asia, Professor Hirschfeld, instead of confining himself almost exclusively to the society of his fellow-Europeans, at once established contacts with the organizations of native doctors, so that he was able to gain a better insight into the characters and dispositions of the natives than he would otherwise have done. Among the many subjects of interest discussed in the book (which will appeal to the general reader as well as to the ethnologist) are prostitution and phallic worship in Japan ; the need of birth control in China ; the imaginary disease named "sich jong" ; the problem of homosexuality, on which the author lectured at the Y.M.C.A. in Shanghai ; alcoholism in the Tropics (where the happiest European women are the abstinent women doctors) ; child marriage, the position of widows and the absence of compulsory education in India ; and the prevalence of extragenital syphilis and the decline in the number of eunuchs in Egypt.

An interesting recent publication of which we have received particulars is vol. vi of the *Annals of the Palermo Clinic for Nervous and Mental Diseases*. This records the scientific work accomplished during the last two years in the clinic directed by Professor Rosolino Colella, and includes forty-four studies (twenty-six now published for the first time), most of them by Professor Colella, and the rest done under his direction.

[7] *Die Bierhefe als Heil—Nahr und Futtermittel.* By Dr. Julius Schülein. Dresden and Leipzig: T. Steinkopff. 1935. (Pp. 194 ; 21 figures, 9 charts. R.M. 9 ; geb., R.M. 10.)

[8] *The Sanitary Inspector's Handbook.* By Henry H. Clay, F.R.San.I. Second edition. London: H. K. Lewis and Co. Ltd. 1936. (Pp. 432 ; 95 figures. 15s. net.)

[9] *Women East and West. Impressions of a Sex Expert.* By Magnus Hirschfeld. English version by O. P. Green. London: William Heinemann (Medical Books) Ltd. 1935. (Pp. 321 ; illustrated. 12s. 6d. net.)

ONE HUNDRED AND FOURTH ANNUAL MEETING
of the

British Medical Association

OXFORD, 1936

THE one hundred and fourth Annual Meeting of the British Medical Association will be held at Oxford next summer under the presidency of Sir E. Farquhar Buzzard, Bt., M.D., Regius Professor of Medicine in the University, who will deliver his address to the Association on the evening of Tuesday, July 21st, in the Sheldonian Theatre. The Sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 22nd, 23rd, and 24th, the morning sessions being given up to discussions and the reading of papers, and the afternoon to demonstrations. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 17th. The full list of presidents, vice-presidents, and honorary secretaries of the twenty Scientific Sections was published in the *Supplement* of January 18th ; also a list of hotels, etc., and the provisional programme. Other details of the arrangements for the Annual Meeting will appear in later issues. We publish below the first of a series of descriptive and historical articles on the City and University and the medical institutions of Oxford.

THE CHARM OF OXFORD

In these columns it is proposed, during the few months before the B.M.A. Meeting, to give an account of Oxford and her colleges. The writer, who is a member of the University and has known Oxford for more than thirty years, has two objects in view. First, he wants to write for those who may never have the good fortune to see this beautiful city, and so he wants to do a little word-painting and not be too scholastic, to give them brief histories and plenty of stories, and to inspire them to make a pilgrimage here—if not actually, then in their dreams. And secondly, he is anxious so to write as to make his writing a guide for those who some day may honour us with their company and perhaps companionship, and especially during the forthcoming Annual Meeting of the British Medical Association.

" The Charm of Oxford "—What is it? How many have asked that question. One is staggered by the question. As if someone had been asked to define the charm of a great symphony, or of a great poem.

Drop all your guide-books and come with me to the top of one of Oxford's towers—Oh! I am a guide, so I must tell you which—well then the Camera in Radcliffe Square, for that they will ask you a penny or two ; or New College tower, and for that you must get permission. Come then to the top of New College tower on a clear morning and look. Just look. And don't ask the names of what you see, though being a guide I must put them in brackets. Is there anywhere else in the world such a vision of fair gardens, spires, pinnacles, and towers within a few hundred yards of your feet? Here just beneath is the College cloister with its lovely lawn. To our left, looking eastwards, the long continuous line of the College Chapel and Hall, forming the north side of the College " quad," with its large oval green velvet lawn. Beyond this again you see the College garden with its avenue of lime trees, surrounded on two sides by the old city wall.

Still looking east there is that beautiful early fifteenth century tower (Magdalen). Slowly you move your gaze southwards: there is another lovely square tower (Merton) ; close to it another, the squat tower of Christ Church Hall, with that lovely very early English spire of the Cathedral. You draw back your gaze nearer to your standpoint, a little west this time, and there is that wonderful spire of the University Church (St. Mary's), with those two quaint Renaissance pinnacles in the foreground (All Souls' College) ; the large dome of the Radcliffe Library (The Camera). The great quadrangular building is the Bodleian Library. You turn quite west and there is Wren's cupola over the Sheldonian Theatre. North, and you see the outline of Trinity and St. John's gardens, Wadham College and its garden ; then masses of trees and gardens and the University Parks, which fortunately hide red-brick residential North Oxford from your view.

But just in a north-east corner you catch sight of a line of willow trees, on the banks of the Cherwell River—you must call it " The Char "—lazily finding its way down to the Thames beneath Magdalen Bridge. Oxford is almost surrounded by these two rivers. Then away, barely two miles away, are the hills. To the east, Shotover, over whose crest the sun peeps at 5 o'clock on May morning, and is saluted by the choir of Magdalen from the top of their tower. Then there is Boar's Hill, and Wytham Woods on the south and west, with the river and meadow lands between them and the city. Are you there on a late spring day or in early summer? Then you will see almond blossom, may, laburnum, chestnut, cherry, and wild pear in garden after garden at your feet.

Now think, or listen and think whilst you look. Beneath that spire of the Cathedral lies the shrine of a Saxon princess and saint, St. Frideswide (750). Round her shrine Oxford began. Can you make out the Castle tower, there, away towards the railway station? From it the Empress Matilda made her escape in the reign of King Stephen. Between the Cathedral spire and the Castle lies a large district still known as " The Friars." This was covered in the thirteenth and fourteenth centuries by the monastic houses of the Franciscans and Dominicans. Here came students from all the universities in Europe. It was a centre of learning, said to have been rivalled only by Athens and Florence. Here Roger Bacon lived and died. There is Balliol College, and you think of Wycliffe and the early days of the Reformation. Tucked away between Bodley and the Sheldonian is that lovely room, the Divinity School. Hither came Erasmus and Colet, hoping to stem the successes of the Reformers' zeal. There is Brazenose Lane, along which the vacillating Cranmer hurried so quickly that his executioners could scarcely keep pace with him, as he went to be burnt at the stake opposite Balliol. There is Queen Elizabeth, entering the city in state, with Edward Campion, the young scholar of St. John's, reciting before her a Latin

ode, little dreaming that she would in a few years send him to his death at Tyburn as one of the leaders of the Counter Reformation.

Here, when Parliament rose in rebellion against its King, came Charles I for safety and security, and here he held his court in Christ Church. Then came over Magdalen Bridge the Puritan Army, when the city had to surrender, and the King rode out to the west. There is the Sheldonian Theatre, where Charles II was to have met his Parliament, but instead was riding away across Magdalen Bridge, towards Windsor, thoroughly enjoying the fun. There is Wadham College, where the Royal Society for the Promotion of the Study of Science held its first meetings. Then you think of that long, dreary eighteenth century—the so-called "Age of Reason," when Oxford shut its doors against all except those who belonged to the Established Church—of the saintly Wesley, who, beginning to preach here, started the great Evangelical Revival, to be followed in 1834 by the greater Oxford Revival (the Oxford Movement). Oriel was its home; Keble, Newman (later a Cardinal) its saintly leaders. Finally you have in this century the return of Benedictines, Franciscans, and Dominicans, with their houses of study as of old.

Oxford is always growing; its roots are stuck deep in the soil of the past, but it is for ever putting forth new flowers and fruit. Its sons come and go; they are scattered over the wide world to carry its learning and its humanizing influence, and many a time they return to teach in their turn what they have learnt elsewhere, to preside over her colleges, or merely once more to sit at the feet of their old Alma Mater.

And now you understand why for a few moments I am silent when you ask "What is the Charm of Oxford?"

H. E. C.

[*The next article will give an account of the Origin of the University.*]

HEALTH OF THE ARMY

REPORT FOR 1934

The report on the health of the Army for 1934[1] shows, as in the case of the Royal Air Force, a notable decrease in the incidence of sickness. The figure for the soldiers is even lower than in 1932, previously the healthiest year since the great war. The report comprises three main divisions—namely, general survey, special departments, and the health of the Army in the different commands at home and abroad, including troops on board ship. In addition, there are eighty-three statistical tables and a number of charts.

Incidence of Diseases

It is recorded that the ratio of admissions to hospital has fallen to 402.6 per 1,000, largely accounted for by an improvement in India, where the incidence of malaria has fallen from 103.3 per 1,000 in 1933 to 67.5 per 1,000 in the year under review. Analysing hospital admissions it may be noted that inflammation of the tonsils, inflammation of areolar tissue, venereal diseases (chiefly gonorrhoea), and malaria provide the greatest number of cases, in this order; influenza shows a marked decrease. For specific infectious diseases the year was a bad one, with a large increase in the incidence of diphtheria and scarlet fever. Twenty cases of anterior poliomyelitis occurred in the Aldershot Command in the autumn, mostly among Army children. Cases of cysticercosis continue to be notified. Local injuries show a slight increase with 9,538 admissions, including 2,317 fractures. The figures for dysentery, in most cases the bacillary form, are slightly worse than in 1933; the majority of cases occurred in India. The enteric group, however, shows a striking decrease, the incidence in India being less than half that of the previous year. Research directed towards the production of a typhoid vaccine of increased protective value, initiated in 1932, was completed during the year under review. Malaria, sand-fly fever, and pulmonary tuberculosis all show reductions. In the case of the last it is interesting to note that the Brigade of Guards shows the highest incidence and the Royal Tank Corps the lowest.

Despite a slight increase in the admission ratio for venereal diseases in India, the figures for the whole Army show some improvement, though the total figure of 4,486 admissions is still large. Treatment of gonorrhoea by saline irrigating fluids showed better results than the potassium permanganate methods.

Following a steady increase in the incidence of gastric and duodenal ulcer during the previous ten years, the figure for 1934 is five times that for 1924. The number of cases, however, requiring emergency operations has fallen considerably. This is attributed to early diagnosis and increased efficacy of medical treatment. Appendicitis accounts for 1,381 admissions to hospital, with fourteen deaths: one-third of the cases occurred in India.

A most interesting table shows the incidence of sickness in the various commands at home and abroad. Taking the average sick time of each soldier Bermuda proved to be the healthiest station, followed by Gibraltar and Malta, while Aden, Jamaica, and China were the most unhealthy. When one recalls the heavy invaliding rate in Malta before the recommendations of the late Sir David Bruce became effective, it is remarkable to see this station occupying third place.

In the section on hygiene mention is made of the trial in Egypt of sun-helmets fitted with a lining of aluminium foil, and of the practice of excluding from the swimming baths those suffering or recovering from ear and throat affections.

Malaria in India

The decrease in the incidence of malaria in India is particularly satisfactory because, owing to excessive rain in many parts of the country, conditions were more unfavourable than usual. Both quinine-plasmoquine and atebrin-plasmoquine have been found to produce a more radical and rapid cure than the administration of quinine alone. An example of the wisdom of mosquito-proofing is cited from Allahabad. In that station most cases of malaria were contracted by troops on garrison duty in the old fort. The building was made mosquito-proof in 1930. For five previous years the hospital admission ratio was 109 per 1,000: in 1932 it fell to forty-nine, in 1933 to forty. In 1934 the mosquito-proofing was removed by the local authorities, and the admission ratio rose to 120. Further progress in mosquito-proofing has been impeded by financial stringency. It is surprising to read that mosquito boots, regarded as a *sine qua non* by the West African Medical Service, are to be withdrawn by the military medical authorities.

The absence of an index and of concise summaries in a report of this magnitude is to be regretted. The information which it contains is of great interest and value, but it is not readily accessible.

[1] *Report on the Health of the Army for the Year 1934.* Vol. lxx. London: H.M. Stationery Office. 1936. (3s. net.)

British Medical Journal

SATURDAY, FEBRUARY 8th, 1936

ANALGESIA IN MIDWIFERY

A consideration of the best means to be employed for the relief of the pangs of childbirth raises many questions of difficulty and delicacy. The prevention of avoidable pain is a duty incumbent upon the obstetric attendant in so far as this is possible by measures which are safe for both mother and child. But it has to be admitted that under existing conditions there are many and serious obstacles to be overcome before the advantages of an obstetrical analgesia fulfilling these conditions are made available for all women during childbirth. These considerations apply with special relevance to the large section of women—over 50 per cent. of the total in England and Wales—who are delivered by midwives. Whilst permitted to employ those simple sedatives with whose action she is familiar—such as the bromides, chloral, and opium—the midwife is not allowed to use any analgesic drug. It has in many quarters been claimed that the natural solution of this very real problem is to be found in the extension to midwives of certain increased powers in this respect. This view has for long been shared by many who have directed special attention to the subject. The Interim Report of the Departmental Committee on Maternal Mortality and Morbidity (1930) gave expression to it when it stated "it is hoped that further research will bring to light a method of relieving pain suitable for use by midwives and free from the disadvantages now in some cases inseparable from the use of general anaesthesia." At the same time, as this quotation clearly implies, it is imperative that any drugs so selected should be of such a kind that they can be employed under the many and varying conditions of domiciliary practice by an attendant who is usually working single-handed, and whose training does not entitle her to handle potent and dangerous drugs except under medical supervision.

For these reasons the report of the investigation into the use of analgesics suitable for administration by midwives which the British College of Obstetricians and Gynaecologists has just issued is to be welcomed. On page 273 we describe the main findings of this report. The investigation was started at the request of the National Birthday Trust Fund, and has been carried on since the end of 1933 in thirty-six maternity hospitals throughout England, Wales, Scotland, and Northern Ireland. It is described as "a controlled trial of those particular methods of analgesia which were already regarded as likely to be suitable for use by midwives." Altogether 9,578 cases have been investigated, the analgesics chosen being chloroform (4,975), nitrous oxide and air (3,865), and paraldehyde administered rectally (738). The most important practical findings are those that relate to chloroform and to gas and air. The report states that paraldehyde failed to provide adequate analgesia in 47 per cent. of cases, and it cannot, therefore, be recommended for use by midwives. The conclusions about chloroform are of special interest and value in view of the hopes that have been entertained by many that chloroform in breakable capsules, each containing 20 minims, might safely be administered by the midwife. This method was studied in 2,532 cases. The effects of chloroform were also observed through a Mennell inhaler in 1,571 cases and through a Christie Brown inhaler in 872. It was found that, as thus employed, chloroform was capable of providing a satisfactory analgesia without the possession of any special skill, and that there was no evidence of damage to the foetus or any appreciable delay in the labour. On the other hand, it was concluded that chloroform was directly responsible for one death out of a total of six occurring in the series, and that it was probably an important factor in the fatal issue in two other cases. The report draws attention to the fact that a full surgical anaesthesia after a prolonged chloroform analgesia may be associated with grave risks. It is emphatic in its opinion that, whereas in the hands of an experienced administrator chloroform analgesia is a method of great value, the skill required for its use renders it unsuitable for employment by midwives acting alone.

A more favourable opinion, however, is expressed on the advantages of nitrous oxide and air. The investigation was carried out with the Minnitt apparatus,[1] by which the patient can "anaesthetize" herself. The method was investigated in 3,865 cases, and there was no evidence of any danger to mother or child or of any deterrent influence on the course of labour. The analgesia was satisfactory in 77 per cent. of cases, and it was found that the actual administration does not call for more special skill than that which may be acquired by a midwife during her period of training. It is stated that the Minnitt apparatus can be handled safely by midwives in hospital, provided that a recent examination of the patient by a medical practitioner has revealed no contraindication. The fact that restlessness and difficulty in controlling the patient are sometimes present implies that further experience is necessary before its suitability for domiciliary practice is established. It is recommended as of value in hospitals where there is no resident medical officer. Incidental to its use there are certain drawbacks—namely, the expense and weight of the apparatus and the occasional necessity for mechanical adjustments and the changing of the cylinders, which tend further to restrict its suitability for midwives working single-handed.

The most important impression conveyed by a perusal of this valuable report is that, under existing conditions, the responsibility for the provision and the control of obstetrical anaesthesia and analgesia must in the public interest remain with the doctor. From this it follows that, for the large group of women who are

[1] See *British Medical Journal*, 1934, ii, 1196.

delivered at home and whose economic status prevents them from having access to the advantages of analgesia, the only salvation from the pangs of childbirth is to be found in an efficient organization of the maternity machine on a national basis and a State provision of those essential services which the women are unable to supply for themselves.

THE TRAINING OF THE SURGEON

Since mediaeval times there have been discussions, regulations, and enactments dealing with the problem of surgical training. In England the traditional method was apprenticeship either to a master of the craft or to some hospital surgeon who was responsible for the whole of the education of the pupil until such time as he could negotiate a test giving him the necessary licence to practise. Throughout the past four hundred years this tradition has been carried on in a more or less modified form in the English-speaking countries. The present trend of American thought and practice on the question of how best to train the young graduate to become a competent surgeon is set forth in a recent series of articles,[1] in which the methods employed in the United States, Great Britain, the Dominions, France, and Germany are freely criticized.

There are two essentials to be considered: the provision of an adequate training and the passing of a test for a diploma or degree recognized by the public as a guarantee of surgical ability. In the U.S.A. the young surgeon is trained under what is known as the resident system. This is becoming the standard practice there, and entails a period of residence of five years or more in a teaching hospital after ordinary qualification. The whole of this time is spent under the personal supervision of a tutor, who is responsible for the work done; and concurrently the resident is in intimate contact with other teachers, with clinical material, with operating theatres, and with laboratories and museums. Such a system provides experience not only in clinical surgery but also in surgical practice and in the development of surgical acumen. Research work is encouraged and individual responsibility for the care of patients is looked upon as essential. In this way operative technique is acquired and the tutor has every opportunity of observing and directing the skill in diagnosis, the operative ability, and surgical judgement of the resident. The American criticism of this method is that, although ideal, it does not at present provide a sufficient number of well-trained men every year who can take their places as surgeons in the community at large. The period of training is long. In England the regulations of the Royal College of Surgeons require candidates for the final Fellowship examination to have spent a period of only one year in attending surgical practice at a recognized hospital; for members of the College seeking the diploma of Fellow, only six months' post-graduate surgery is demanded. The American system has as its aim the production of a highly competent practitioner of surgery. Our system tends to favour the academic rather than the practical surgeon, and the coveted letters F.R.C.S. may appear after the name of a man who, however brilliant in papers and oral examinations, is surpassingly clumsy with his hands.

The variation in standards and methods of instruction in the British Isles and in America makes a comparison of them with those in Australasia of interest. Our link with Australia is so strong that it may be taken for granted that the Royal Australasian College would have adopted the British system without hesitation had it been assured that it was the best way of meeting professional and public needs. Actually, however, that College has steered a course which brings it back to the traditional system of pupilage and nearer to the modern American system. The intending surgeon is "apprenticed" to a master surgeon for a period of five years, during which time surgical ability and judgement are developed and original research is encouraged. The American movement towards what is in effect a twentieth century adaptation of the old apprenticeship system is both interesting and significant. Already in this country there are opportunities for young surgeons to serve an apprenticeship training, and if, as is possible, further whole-time teaching units are established, these opportunities will increase. An outstanding difference from the American system appears to be that whereas an American higher qualification is not awarded until the apprenticeship has been served, in this country it is customary for aspirants for surgical appointments to obtain first their higher diploma and then enter the field of competition at the bottom of the surgical ladder. Owing to the fact that this competition is keen and that surgical opportunities only increase with the attainment of more senior resident or assistant appointments, the standard of British surgery is maintained.

Although in recent years the final examination for the Fellowship of the English Royal College has met with sharp criticism on several occasions, its defects are probably more apparent than real. The examination is of a practical and searching character; and although admittedly, in the test in operative surgery, candidates perform operations on the cadaver only, the subsequent oral examination enables the examiners to test the candidate's familiarity with the actual practice of operative surgery. The Fellowships of the Royal Colleges of Surgeons remain the hall-marks of British surgery, and despite criticism it would seem as reasonable to condemn Christianity because there are bad Christians as to condemn the English Fellowship because some Fellows are bad surgeons.

The training of the surgeon, we might add, has some repercussion on the education of the public in its attitude towards surgery. The American College of Surgeons has made it part of its policy to persuade the citizens of the United States that surgical operations ought to be carried out only by Fellows of the College. That aspect of the question has not so far been taken up in this country, and the time seems hardly ripe for discussion of it here.

[1] *Annals of Surgery*, October, 1935.

RHEUMATIC FEVER AND VITAMIN C DEFICIENCY

Despite observations to the contrary, such as those of Perry,[1] the hypothesis that vitamin C deficiency plays some part in the causation of rheumatic fever is still attracting the attention of various workers. J. F. Rinehart has recently[2] presented the results of certain experimental work, which include observations on the structure of the heart in acute, subacute, and chronic scurvy alone ; in similar degrees of scurvy associated with infection ; and, as controls, in infected and non-infected animals maintained on the same basic diet adequately supplemented with orange juice. It is concluded that in scurvy with superimposed infection striking lesions of a combined degenerative and proliferative character frequently develop in the heart valves, and such lesions are held to resemble very closely the early lesions of rheumatic fever. It is further claimed that the essential changes in and about the joints of the experimental animals in subacute scurvy with or without infection correspond closely to those described in the arthritis of rheumatic fever. Subcutaneous nodules are also occasionally met with. It should be noted, however, that pathological changes corresponding to those of a chronic rheumatic endocarditis have not been produced. These results confirm other similar experimental findings, and so far as they go they are obviously of great interest. To carry the matter a stage further into the difficult problem of the aetiology of juvenile rheumatism and heart disease is a much more speculative procedure. Evidence of malnutrition as an underlying factor in this disorder is not altogether convincing, and the fact that there are symptoms common to both scurvy and rheumatic fever, such as fatigue, muscular pains, and "nervousness," means little more than that the body has certain habitual ways of expressing its dis-ease. The use of the capillary resistance test as an accurate guide to the presence of latent scurvy has also been criticized, and clinical studies of rheumatic children by this method are of limited value. Application of the Harris-Ray chemical test of vitamin C deficiency would be of much greater value, and Perry's observations with this method, as already mentioned, did not confirm the theory of latent scurvy as a factor in the rheumatic manifestations of childhood. There is therefore at present a gap between experimental findings and clinical observations which must be carefully filled in before the obvious therapeutic applications of the hypothesis mentioned above can be helpfully made.

[1] *Lancet*, 1935, ii, 426.
[2] *Ann. Int. Med.*, November, 1935, ix, 586.

ORTHOPTIC TREATMENT OF SQUINT

The treatment of squint presents more than one problem, and the different methods of approach practised by different surgeons represent essentially individual emphasis on some particular aspect. Unanimity is hardly likely to be achieved so long as the basic pathology of squint is in dispute, and recent work on the subject has tended to emphasize the disturbance in binocular vision rather than the deformity. This in itself is nothing new, even as orthoptic treatment, in spite of its high-sounding name, represents no great departure from previous methods. One thing is clear from the mass of publications during the past few years on this particular aspect: the fundamental difficulty in the treatment of squint—namely, the presence of amblyopia—still offers the same stonewall aspect. Although it is now customary to regard amblyopia as the result of disuse and to direct treatment on this hypothesis, it must be stressed that this view of amblyopia is by no means a proven fact. Modern orthoptic treatment has no contribution to make to this problem. The principles guiding orthoptic treatment aim primarily, not at the overcoming of amblyopia, but at the development of binocular vision. Orthoptic treatment is admitted to be valueless when amblyopia is present to any extent, and the ideal case for this method of treatment is one in which the squint is not long-standing, is relatively small, and vision in the squinting eye is not less than 6/12. With such limitations the scope of orthoptic treatment shrinks considerably when all cases of squint are considered. What orthoptic treatment has done is to bring again forcibly to the forefront the question of the ideal age for operation on squint. Now that orthoptic treatment has proved itself a useful adjuvant to operation, it may be asked whether it is not justifiable to operate early so that orthoptic treatment may not merely overcome any residual degree of squint but develop binocular vision—provided always that the squinting eye has good vision. The problems that have emerged from the intensive application of orthoptic principles in the treatment of concomitant squint have recently been reviewed by Mr. T. à B. Travers in an essay[1] which was awarded the Gifford Edmonds prize. Mr. Travers has given a balanced view of the subject, and his conclusions have both caution and practical value. He points out that gradually the criteria are emerging by which the optimum age for operation can be determined. The degree of squint and its relation to the degree of fusion faculty are the two factors which have to be weighed before a decision is reached. The principles evolved by orthoptic treatment are therefore proving of use not only in the actual treatment of squint but as guides in determining when to operate.

MAPHARSEN IN THE TREATMENT OF SYPHILIS

Mapharsen—so named by Tatum and Cooper as an abbreviation for meta-amino-para-hydroxy-phenyl-arsine-oxide—forms the subject of two papers, one by Gruhzit[2] and the other by Foerster, McIntosh, Wieder, Foerster, and Cooper.[3] Gruhzit tested its toxicity and therapeutic activity on experimental animals—with especial reference to spirochaetosis and trypanosomiasis. Without going into details, it suffices to say that the results of a most valuable and painstaking piece of work, extending over three years, indicate that the drug produced no toxic effects in dogs in amounts well above the therapeutic dose ; it cleared up syphilitic lesions in rabbits in a dose of 1 mg. per kilo as well as did 10 mg. of neosalvarsan, and caused the disappearance of spirochaetes from superficial lesions in a shorter time: mapharsen also had a greater effect on the Kahn reaction. In experimental syphilis and trypanosomiasis this drug appeared to be well tolerated, and to possess at least as high a therapeutic value as neoarsphenamine. The other five workers investigated the action of

[1] Supplement to *Brit. Journ. Ophthalmol.*, January, 1936.
[2] *Arch. Derm. and Syph.*, December, 1935, p. 848.
[3] Ibid., December, 1935, p. 868.

mapharsen in human syphilis over a period of eighteen months, during which 233 persons were given 4,666 injections intravenously, the usual dose being 40 to 60 mg. In order not to complicate the issue the arsenical was used without either bismuth or mercury. As a result spirochaetes disappeared quickly from surface lesions—on the average within twenty-four hours—and healing of visible lesions was rapid, the drug comparing favourably in this respect with arsphenamine. The Wassermann reaction of the blood was reversed to negative in nearly all cases of early syphilis ; in half of the cases there was serological relapse (in five cases associated with abnormal spinal fluid). Clinical relapse and a return to positive serological findings occurred most often after irregular or short periods of therapy, with long lapses in treatment, during the first six months ; this will not cause surprise seeing that no bismuth was given, and is most significant. As to toxic effects, nitritoid reactions were not observed, but mild gastro-intestinal disturbances were not uncommon, and well-marked Herxheimer reactions were occasionally noted. There was no case of exfoliative dermatitis in this series, though cases have been reported ; mild jaundice occurred in four patients (5 per cent.), and increase of renal impairment was observed in four others. The authors came to the conclusion that mapharsen is a potent anti-syphilitic agent which deserves an extensive study over a prolonged period. The above investigation of mapharsen is interesting, especially as the drug is now being tested in various clinics in this country. Up to the present it is possible to confirm its active spirochaeticidal properties, which are at least equal to those of neoarsphenamine ; whether its action on the Wassermann reaction and its curative effects will turn out to be equally good remains to be seen. In any case syphilologists will do well to keep an open mind and await the results of further experiments, for it must be remembered that highly successful clinical results may be expected if the standard treatment of early syphilis is carried out according to the recommendations of the experts of the League of Nations Committee.

A HOLIDAY FOR DIABETIC CHILDREN

The *Journal of the Diabetic Association* for October contained a very interesting account of the holiday which was arranged for diabetic children last summer. A large boarding school near Camberley was lent to the association for four weeks, and arrangements were made for twenty girls and twenty boys to have fourteen days' holiday. The task of looking after twenty children—many of whom had never had a chance of leaving home since they developed diabetes—seems, at first, to be rather formidable, but through the skill and energy of the dietitians of some of the London hospitals, and of other willing workers, the arrangements were carried through without any hitch. The children were specially chosen from the out-patient departments of the London hospitals, and full details of the amount of carbohydrate, protein and fat, and insulin which the children were having were supplied beforehand. Even with all this information the task of superintending twenty different diets, and the injection of insulin, and the testing of the urine, must have been a great responsibility. The grounds of the school, the gymnasium, and the swimming pool provided ample space for games and exercise, and, in addition, expeditions were made to Windsor Castle and Hayling Island. This holiday serves three main functions: (1) To give a good holiday to London children ; (2) to teach the children to be independent ; (3) to give a rest to the parents of the diabetic children. The task of looking after a diabetic child is a great strain on a good and careful mother. The holiday plan is an attempt to copy the holiday camps for diabetic children which are so well organized in Boston and Cleveland, U.S.A., and it should be developed yet more. Forty boys and girls from London hospital out-patients seems a small number, and next year the number should be increased. Again, all the children came from London, and no mention is made in the *Journal of the Diabetic Association* of similar holidays being arranged for children from, say, Manchester, Liverpool, Birmingham, Edinburgh, and Glasgow. Nor is any mention made of the cost, but it is clear that the children's payments could not have covered the expenses. This is such a worthy object that when the Diabetic Association discloses its needs funds will certainly be forthcoming. This is the first holiday home arranged by the newly formed Diabetic Association, and we hope that its success will encourage it to continue and expand its work.

A FILM OF THE WORLD TOUR

Eleven of the party who went on the B.M.A. World Tour to Melbourne and back in connexion with the Annual Meeting last year used cinematograph cameras on the voyage, and their films, taken for the most part as personal souvenirs, have been worked up by Kodak Ltd. into a composite reel. The reel, which is 2,234 feet long, and takes an hour and a quarter to project, was shown for the first time in the Hastings Hall at Tavistock Square last week, when it reminded many of those present of some happy and unusual experiences, and excited new envy among those who did not share them. As is only to be expected with a number of records taken by various people independently, the different sections of the film betray various degrees of photographic skill and originality in selection of view-point, but there is a quite surprising amount of sequence. The film accompanies the pilgrims from their farewell to the English scene (when to all appearance they began immediately to play most vigorous games on deck), across America, and over the boundless Pacific, touching at Hawaii and Fiji, to New Zealand and Australia, and so still westwards by Singapore and Penang, to Ceylon and Bombay, and thence through the Red Sea, with a diversion to Cairo and the Pyramids, and homewards through the Mediterranean, with glimpses from new angles of Malta, and Gibraltar, and Tangier. It cannot be said that the leading members of the party showed any great genius as film stars, even after having visited Hollywood in the course of their travels. They were generally scrupulous in avoiding the camera, and when it did catch them it appeared to freeze them into immobility. The only occasion on which several eminent members of the profession were clearly recognizable at once was at a tea party at Singapore. As affording a fleeting glimpse of many strange lands and people the film has distinct "travel value." What rather strikes the spectator who did not go on the

World Tour is the evidence everywhere of cordial welcome. Why this party of British medical men and their ladies should have incited the Maori, the Cingalese, the Javanese, the North American Indians to the most fantastic songs and dances, why the Fijians should have walked on fire for their benefit, and the Indians at Bombay have charmed their snakes, we cannot profess to explain. Many of the cinematographers were alive to the opportunities of fine scenery ; and Niagara and the Great Lakes, the New York skyscrapers (from a distance), the Rockies, the Australian coast between Sydney and Port Darwin, and sunrise over the Dutch East Indies were all excellently recorded. The film includes an interesting section recording a visit to the leper colony at Kuala Lumpur, the federal capital of the Malay States, and again, just to show that it was not all play and sight-seeing, we have a glimpse of a crowded Indian lecture theatre and the gestures of the lecturer. The film should certainly be an attractive feature for a social evening in a Division programme, especially as some members of the party have expressed their willingness to give a "vocal accompaniment," for although the film is well captioned there are many things in its quickly varied presentation which one would like to know more about. A copy of the film has been purchased for the Association.

TUBERCLE BACILLI IN HUMAN MILK

That cattle with clinically normal udders may excrete tubercle bacilli in milk is a well-known fact. It therefore seems remarkable that throughout the considerable literature on the prevention of tuberculosis in infants it has been tacitly assumed that a comparable phenomenon does not occur in women. Blisnjanska, Lasarevitsch, and Triousse[1] of Moscow point out that attempts to study this problem had been made many years ago, but the methods used were not reliable, and no conclusions could be based on them. Their own investigation was prompted by the findings in the Institute Claire Zetkine, where a special department exists for the confinement of tuberculous women. Of 112 babies born of mothers with tubercle bacilli in the sputum either during or very shortly before pregnancy, all except twenty-six were vaccinated with B.C.G. Only twenty-seven of the infants were completely separated immediately at birth ; the mothers of the remainder insisted upon feeding them on the breast, but rigid precautions against contamination were taken—wearing of masks, preliminary cleansing of hands and nipples, and the use of a sheet leaving only the breast uncovered. Of the twenty-seven separated infants thirteen died in the first year of life, chiefly of respiratory or gastro-intestinal disease, no tuberculous lesions being found post mortem ; in addition, one infant vaccinated with B.C.G. died at 3 months of miliary tuberculosis, but the distributions of the lesions post mortem pointed to the infection having originated *in utero*. No clear relation between the fate of the separated infants and the gravity of the mother's illness could be established. Of the eighty-five non-separated infants, ten died of non-tuberculous disease in the first two years of life, and one (non-vaccinated) of tuberculosis at 9 months. Nine more have developed tuberculosis, but the remaining sixty-five are perfectly well, eight of the children having now reached the age of 5 to 8 years. The authors attribute the small general mortality to the excellent care given to the children by the mothers, but the low incidence of tuberculosis led them to investigate whether the breast milk itself was infectious. So far the milk from only thirty-three tuberculous women has been completely investigated. In ten of these (30 per cent.) the "tubercle virus" was discovered. The method of procedure was thorough: the samples were taken with all necessary precautions, examined microscopically, cultured (by Loewenstein's method), and inoculated into guinea-pigs, kept for over a year if necessary. In one case the bacilli were found microscopically, and in another a positive culture was obtained, virulence in both cases being confirmed by animal inoculation. This was the only positive culture ; although in two other cases colonies of acid-fast bacilli were found, their pathogenic nature was not confirmed. In only three of the ten positive animal inoculations was the typical picture of generalized tuberculosis obtained. In the others it resembled more that described by French authors as caused by the *ultra-virus tuberculeux*: in five cases tubercle bacilli were found in the glands or cultured from them ; in two others the animals lived for over a year, but in each case bacilli were cultured from the enlarged tracheo-bronchial glands. In none of the women giving a positive result in the milk could tubercle bacilli, with Loewenstein's technique, be demonstrated in the blood ; and the authors conclude that the excretion of the virus in the milk, often in an attenuated form, must be a temporary phenomenon associated with short bacillaemic episodes due to aggravation of the illness as the result of labour. All the seven children fed on this infected milk are perfectly well although now over 2 years old, and four of them are even Pirquet-negative. In discussing these results the authors consider the feeble virulence of the virus, the possibility of an immunizing action, and the factor of B.C.G. vaccination. They are very cautious in forming conclusions at this stage of their work. They point out that it cannot yet be said that breast-feeding in the conditions described above is harmless, but that it is clear that breast-feeding by a tuberculous mother is not necessarily fatal to the infant.

[1] *Gynécol. et Obstét.*, 1935, xxxii, 505.

THE M.R.C.P. EXAMINATION

The Royal College of Physicians of London has decided in future to eliminate from the membership examination the requirement of translations from Greek and Latin. Changes in general education have brought it about that the response to the requirement was almost negligible. More importance will henceforth attach to the translations from French and German, and there will be a definite small allotment of marks for these in the total qualifying marks. They will, however, remain optional as heretofore, seeing that, with candidates drawn from all parts of the Empire, facilities for acquiring a working knowledge of French and German vary very widely.

We regret to announce the death in his 81st year of Mr. William Henry Battle, consulting surgeon to St. Thomas's Hospital, and at one time surgeon to the Royal Free Hospital.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the digestive system met with in general practice.

TREATMENT OF ACUTE AND CHRONIC GASTRITIS

BY

S. W. PATTERSON, M.D., D.Sc., F.R.C.P.

Acute Gastritis

Acute gastritis may be, first, *toxic*, from taking poisons, such as caustic alkalis, corrosive acids, lysol, phosphorus, mercury, or arsenic. The treatment of these forms of gastritis will not be dealt with here. Secondly, gastritis may be *irritative*, following dietetic indiscretions, overeating, ingestion of bad or insufficiently masticated food, or excess of alcohol. Or, finally, it may be *secondary* to various febrile and infectious diseases. In this last group it is necessary to treat the cause, and also to give attention to dieting and medical measures for the relief of digestive symptoms.

IRRITATIVE GASTRITIS

A case of irritative gastritis following rich food or excess of alcohol is treated by putting the patient to bed in a quiet room. Nature usually helps in the elimination of the irritating material by vomiting, which is to be encouraged by prescribing one drachm of sodium bicarbonate to a pint of warm water, in quantities of two or three tablespoonfuls at a time. It is useful sometimes to give twelve or fifteen ounces, which are brought up again and relieve the patient's sick feelings. To start the vomiting in a strong and obstreperous alcoholic patient 1/5 to 1/10 of a grain of apomorphine may be injected subcutaneously ; after vomiting profusely he will become calm, and often sleep for several hours.

The patient is better without any food for twelve hours, but he may be allowed to quench his thirst with the juice of an orange in a tumbler of water or soda-water. Then whey, junket, and thin barley water may be taken ; later, weak tea with a dash of milk, fruit juice, or albumin water, three or four tablespoonfuls of the fluids being given every two hours. In a favourable case, on the third or fourth day add rusks, toast with a little butter, a lightly boiled egg, and steamed fish ; thus, gradually, an ordinary diet may be resumed. For a time it is better to omit rich or fatty dishes and cream, and a diet suitable for chronic gastritis (vide infra) may be prescribed with advantage.

SECONDARY GASTRITIS

Gastritis which is secondary to the infectious fevers often causes troublesome symptoms. In acute febrile illness it may be thought that food is of less importance than fluids, and it may be enough to keep the patient going, or allow him to live, on his own tissues, with the addition of glucose in solution to prevent acidosis. In more prolonged fever gastric symptoms need much care, and a patient with typhoid fever who vomits is a source of great anxiety. A liquid diet of clear meat or vegetable soup, milk diluted with water, barley or rice water, soda-water or a junket, in amounts of one to five ounces every two hours, is best. Tincture of iodine or dilute hydrocyanic acid, in single-drop doses in water before the drink, often soothes the stomach, or small pieces of ice may be sucked. An ice-bag applied to the stomach often helps.

Chronic Gastritis

In a series of cases of chronic gastritis observed at Ruthin Castle, the diagnosis being made on the symptoms and from *x*-ray examination, nearly 30 per cent. were found to be due to exogenous causes—for example, faulty mastication, defective teeth, ingestion of alcohol, excess of tobacco or of drugs such as aspirin. In nearly 50 per cent. an endogenous toxin was responsible: either from swallowed muco-purulent material from the nasopharynx, accessory sinuses, or from infected teeth, or from an infected gall-bladder, appendix, or colon ; or from more general infections, such as those due to the tubercle bacillus, the streptococcus, or the *B. coli* ; or in uraemia. Of the rest about 12 per cent. were associated with inherent nervous states and microcytic anaemia, and 12 per cent. occurred in the decrescent period of life, accompanying atheroma, arteriosclerosis, and osteo-arthritis.

TREATMENT OF THE CAUSE

In treatment it is of primary importance to deal with the cause. Faulty table habits, therefore, must be corrected and enough time be given to meals, which should be served in pleasant surroundings and taken in a leisurely manner. The family physician has opportunities of seeing things for himself and for making the dining-room conditions more suitable for the patient. Relishes, chutneys, and sauces are often taken, not to stimulate a jaded appetite, but to cover badly cooked or untastefully served food. All defective teeth should be dealt with, and, if necessary, dentures fitted and adjusted. The condition of the nasopharynx, throat, and tonsils may require treatment to prevent pus from being swallowed. The patient's habits in regard to alcohol and tobacco may need correction does not therefore come much into consideration. The stomach should be forbidden.

DIET

In severe cases it may be advisable to begin treatment by putting the patient to bed on a fluid diet, consisting of a cupful of water, weak tea, barley water, rice water, arrowroot made with water, or soda-water, every two or three hours. The cereals may be sweetened with glucose, and fluids flavoured with the juice of an orange. On the second or third day some diluted milk may be added, with a rusk, plain biscuit, cornflour, or one of the proprietary invalid cereal foods ; or meat or chicken jelly may be given. When the diet is increased protein foods are added, but fats are not as a rule well tolerated. The next step is to add at intervals steamed or boiled fish, with boiled potato, tender or minced meat or chicken, and lightly boiled egg with toast or bread and a little butter. Thus a "skeleton" diet is being given to which gradual additions are made to bring it up to the diet described below. The principle of the diet recommended is to reduce the demands on the stomach as much as possible, avoiding especially over-distension ; the acidity of the gastric juice and the general character of the gastric secretion. Smoking before meals and alcohol on an empty meals should be small and rather dry, a little fluid being

taken during or at the end of the meal. Fluid to quench thirst is drunk half an hour before meals, and on rising and at bedtime.

The diet for a case of moderate severity, when convalescent, may be arranged as follows:

Breakfast.—Well-cooked porridge or cereal with cream. Dried bread, toast, or rusks; butter; weak tea; milk. Eggs or fish.

10.30 a.m.—Milk (1/2 pint) and rusk.

Lunch.—Dried bread or toast, butter. Chicken, boiled mutton, minced beef, tongue, or tripe. Potato, green vegetables (sieved).

Tea.—Dried bread, toast, plain biscuits, or light sponge-cake. Butter, jelly, weak tea with milk.

Dinner.—Bread or toast, butter. Fish or egg dish. Macaroni or vermicelli. Custard, junket, or milk pudding. Fruit jelly or purée.

Bedtime.—Milk (1/2 pint) and rusk if desired.

LOCAL TREATMENT

This is carried out by using water, or various simple solutions, to remove stagnant or fermenting food retained in the stomach and to wash the lining walls. The usual method adopted is to have the patient seated in a chair and leaning slightly forward. The physician, standing on the patient's right, passes firmly but gently a Jacques' oesophageal tube (No. 23) into the patient's stomach, the tube having been lubricated with a little glycerin and filled with the solution to be employed. To the free end of the tube a glass or enamel conical funnel of six or eight inches diameter is attached by a connecting rubber tube. The solution used, which is preferably water at body temperature, is run into the stomach at a pressure of not more than two feet above the mouth, and then siphoned out into a bucket. Six or eight quarts may be run in and out, in quantities of two or three funnelfuls at a time, without the least discomfort to the patient; distension is to be avoided. This is continued until the return is clear. The patient is instructed to breathe quietly, deeply, and steadily; this prevents retching. If the stomach becomes over-distended with fluid he may vomit the tube and stomach contents. If much mucus is present 1 per cent. bicarbonate of soda helps to dissolve it; and, in the presence of much fermentation, hydrogen peroxide, one or two drachms to the pint. Blood in the return fluid is an indication to withdraw the tube and cease this method of treatment.

For less severe cases and for treatment at home gastric lavage is easily carried out by the patient in the following way. He or she drinks twelve to eighteen ounces of a solution of bicarbonate of soda, one drachm to a pint of warm water, and lies on the left side for half an hour, then turns on the right side for fifteen or twenty minutes. This may be done during an hour's rest before the evening meal, or even twice a day before the two principal meals. Warm applications to the abdomen, such as hot-water bottles or linseed poultices, relieve pain and discomfort in patients with any form of gastritis.

MEDICINES

In mild cases it is useful to prescribe alkalis with a bitter; to this mild antiseptics such as sulphocarbolate or salicylate of soda may be added, as in the following prescription:

℞ Sod. bicarb. ... ... gr. x
Sod. sulphocarbol. ... ... gr. xx
Spt. ammon. aromat. ... ... ♏ xx
Spt. chlorof. ... ... ♏ x
Inf. gent. co. ... ... ad ℥ j
℥ j, t.i.d., p.c.

Constipation may be troublesome, and is best treated by a dessertspoonful or two of liquid paraffin, taken night and morning, or one or two teaspoonfuls of cremor. magnes. (*B.P.C.*) once or twice a day. In some cases of achylia the bowels may be too loose; here treatment with bismuth or kaolin may be helpful, as is an acid mixture, for the stomach.

℞ Bismuth oxychloride ... ... 1 part
Kaylene ... ... 2 parts
℥ j, t.i.d., p.c.

In mild cases with subacidity it may be enough to give the following mixture fifteen minutes before meals. This is especially useful for elderly patients with poor appetites.

℞ Acid. hydrochlor. dil. ... ... ♏ x
Tinct. nucis vom. ... ... ♏ v
Glycerin ... ... ♏ xxx
Inf. gent. co. ... ... ad ℥ j
℥ j, t.i.d., a.c.

In more severe cases with marked deficiency of acid a drink is given containing fifty to sixty drops of dilute hydrochloric acid in half a pint of water; this may be flavoured with the juice of an orange and a teaspoonful of sugar. Most of the drink is sipped between mouthfuls of food, and the rest is taken at the end of the meal.

ANALGESICS SUITABLE FOR ADMINISTRATION BY MIDWIVES

INVESTIGATION BY THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the request of the National Birthday Trust Fund the British College of Obstetricians and Gynaecologists has carried out an investigation to ascertain if there is any form of analgesia (relief from pain) which can be used with safety and success by a midwife in the absence of a medical practitioner.

The trial has been made in institutions because adequate medical supervision and facilities for the necessary observation and accurate recording of results are more readily available in such places. Thirty-six hospitals, for the most part maternity hospitals or departments attached to medical schools, accepted the invitation to take part in the investigation. Five methods were adopted for investigation—that is, chloroform capsules, the Christie Brown chloroform inhaler, the Mennell chloroform inhaler, the Minnitt gas and air apparatus, and the administration of paraldehyde per rectum.

The records of nearly 10,000 cases have been studied and classified into three main groups—namely: (1) nitrous oxide and air, (2) chloroform, (3) paraldehyde.

1. Nitrous Oxide and Air

Nitrous oxide and air was administered with the Minnitt apparatus to 3,865 cases, and in 627 of them an additional anaesthetic was given, mainly on account of some obstetric difficulty. Nitrous oxide and air was thus administered to 3,238 cases without any supplementary anaesthetic or analgesic. In this series there were three maternal deaths, which were in no way due to the analgesia. Among the 627 cases in which an additional anaesthetic was given there were six maternal deaths. In every case the death was the result of serious obstetric difficulty and in no case was it attributable to the administration of the gas and air.

The stillbirth rate when the Minnitt apparatus alone was used was 2 per cent. When administered by a sister, staff nurse, or pupil-midwife it was 1.2 per cent. The higher stillbirth rate in cases undertaken by a medical practitioner is accounted for by the fact that he would be more likely to be called upon in difficult cases, in which a relatively high stillbirth rate is to be expected. When a full anaesthetic was given (frequently on account of some obstetric abnormality) the stillbirth rate was 4.3 per cent. The stillbirth rate for the whole series, however, shows that the method does not involve any

added risk to the foetus, and the low stillbirth rate when the analgesic was self-administered (or administered by a pupil-midwife) indicates that the actual administration does not call for more special skill than that which may be acquired by a midwife during her period of training. The number of cases in which obstetric intervention was necessary is an indication of the degree to which the normal forces of labour were interfered with. In the series of 3,865 it was 8.4 per cent. (forceps delivery alone 6.6 per cent.), and as these figures compare favourably with the intervention rate in ordinary practice the conclusion is justified that this method has no deterrent influence on the natural course of labour.

The records of the patients who received analgesia from the Minnitt apparatus have been analysed as regards the efficacy of the method as follows:

Satisfactory	77.0 per cent.
Doubtful	5.3 ,, ,,
Unsatisfactory	17.7 ,, ,,
	100.0 ,, ,,

Investigation was further made into the relative effectiveness of this form of analgesia when self-administered or when administered by persons of varying degrees of experience. The proportion of cases in which satisfactory analgesia was obtained with various classes of administrators is set out in the table below. The table is an analysis of 3,238 cases in which the Minnitt gas and air apparatus was used without any additional anaesthetic or analgesic.

Administered by	Total Cases	Percentage of Satisfactory Cases
Patient herself	1,086	88.0
Pupil-midwife or medical student ...	553	81.4
Certified midwife	797	82.1
Medical practitioner	802	82.8

Conclusions

The conclusions reached are as follows:

1. The investigation has proved that the administration of gas and air by the Minnitt apparatus is safe for use by midwives in hospital, provided that a recent examination by a medical practitioner has revealed no contra-indication thereto.

2. The use of that apparatus should be restricted to those midwives who have had a special training in its use, and who have shown themselves capable of managing it. Such training could be carried out concurrently with that for the Central Midwives Board, when the proposed longer period of training is adopted. For those already holding the C.M.B. certificate a special course would be required. The reasons for stressing the importance of a long training are that it requires considerable experience to learn the essentials of obstetric analgesia. Furthermore, experience in mechanical adjustments and in the changing of gas cylinders is essential if the machine is to work efficiently.

3. Gas and air administered by the Minnitt apparatus produces satisfactory analgesia in a high proportion of cases. Sometimes, however, there is restlessness and a difficulty in controlling the patient; therefore it is essential that one other responsible person should be present in addition to the midwife in charge of the case.

4. Further experience is necessary before the suitability of the Minnitt apparatus for domiciliary practice is proved, as this investigation has only been carried out in hospitals where additional help was always readily obtainable.

5. Owing to the weight and bulk of the apparatus, transport of it would present serious difficulties in domiciliary practice, but it is possible that the wider use of "light" cylinders and further simplifications of the apparatus may go far to solve this problem.

6. The apparatus presents certain mechanical difficulties which have necessitated return to the makers. Whilst due regard must be given to these difficulties, it may be possible to overcome them, once there is a sufficient demand to stimulate mechanical improvements. It must be borne in mind, however, that a certain amount of mechanical aptitude would be still required to change cylinders of gas and to make minor adjustments. Such adjustments involve the use of a spanner and the frequent inspection of washers and joints.

7. The cost of the apparatus is a handicap to general use. Apart from the initial expense, the cost of the nitrous oxide is high. Moreover, there is a serious risk of wastage, owing to the fact that, as the apparatus is now constructed, leakage may occur at many places unless constant attention is given to minor adjustments.

2. Chloroform

In the majority of patients chloroform analgesia was used alone, but in some it was necessary (often on account of some obstetric abnormality) to supplement the analgesia with general anaesthesia. Thus for each method the patients have been divided into two groups, and the maternal deaths in each group have been recorded in the following table:

Method	Analgesia Alone		Analgesia plus General Anaesthesia	
	Total Cases	Deaths	Total Cases	Deaths
Chloroform capsules ...	2,338	1	194	0
Mennell inhaler	1,430	1	141	2
Christie Brown inhaler ...	809	0	63	2
	4,577	2	398	4

Thus the maternal mortality rate in this group of 4,975 patients was 1.2 per 1,000.

From a study of the details of these six deaths the conclusion reached is that chloroform was directly responsible for death in one case, that it was probably an important factor in the fatal issue in two cases, and that it was in no way responsible for death in three cases.

The total stillbirth rate for all cases in which analgesia was obtained by the use of chloroform was 2.6 per cent. It includes all cases in which obstetric intervention became necessary after the analgesia had been started. Thus it may be said that there is no evidence that chloroform analgesia is attended by increased risk to the foetus.

Methods	Analgesia Alone		Analgesia followed by General Anaesthetic	
	Total Cases	Stillbirth Rate per cent.	Total Cases	Stillbirth Rate per cent.
Chloroform capsules ...	2,338	2.4	194	17.5
Mennell inhaler ...	1,430	1.3	141	4.3
Christie Brown inhaler	809	1.9	63	3.2

The intervention rate for all cases receiving chloroform capsules was 5.3 per cent. (forceps delivery 3.7 per cent.). Thus there is no evidence that the use of chloroform as an analgesic in these cases caused any material interference with the normal forces of labour.

The efficacy of the analgesia produced by chloroform capsules is shown in the following figures:

Satisfactory	81.8 per cent.
Doubtful	3.7 ,, ,,
Unsatisfactory	14.5 ,, ,,
	100.0 ,, ,,

The efficacy of the analgesia produced by the Mennell inhaler is shown in the following figures:

Satisfactory	84.9 per cent.
Doubtful	2.7 ,, ,,
Unsatisfactory	12.4 ,, ,,
	100.0 ,, ,,

The efficacy of the analgesia produced by the Christie Brown inhaler is shown in the following figures:

Satisfactory	78.8 per cent.
Doubtful	6.3 „ „
Unsatisfactory	14.9 „ „
	100.0 „ „

Investigation has been made into the proportion of the patients in whom satisfactory analgesia was obtained when the analgesic was administered by persons of varying degrees of experience. The following table is an analysis of the cases in which no additional anaesthetic was given:

Percentage of Patients who obtained Satisfactory Analgesia

Analgesic Administered by	Chloroform Capsules	Mennell Inhaler	Christie Brown Inhaler
Patient herself ...	87.7 (277)	83.4 (477)	82.1 (252)
Pupil-midwife or medical student	81.8 (1,239)	81.5 (92)	82.2 (157)
Certified midwife ...	83.9 (695)	92.1 (559)	81.3 (347)
Medical practitioner	86.6 (127)	93.7 (302)	86.8 (53)

Note: The figures in parenthesis represent the total numbers of cases in the several groups.

Conclusion

Chloroform by any method should not be used by midwives acting alone. This conclusion has been reached with regret, but both the immediate and the delayed dangers which are well recognized occurred in this investigation, and it is not possible fully to guard against such occurrences if the administration of chloroform is in inexperienced hands. This finding should not be taken to prejudice the administration of chloroform in midwifery by registered medical practitioners, who, aware of the dangers, can take precautions to lessen the risks.

3. Paraldehyde in Oil per Rectum

While there can be no doubt that in some selected cases the use of paraldehyde during the first stage of labour may be a valuable means of relieving pain, the general opinion of those who have used it as a routine method in this investigation is that it is unsuitable for general use by midwives. In arriving at this conclusion they have had in mind the technical difficulties in administering the drug, the need for careful selection of suitable patients, the choice of time for giving the injection, its variable action even when patients are carefully selected, and the inadequate analgesia at the time of the actual birth of the child. This last is probably the most important objection to its widespread use by midwives, since, even if effective in the early stages of labour, some additional method of analgesia must be provided if the pain associated with the moment of birth is to be relieved.

General Summary

The following summary of conclusions and recommendations is appended to the report, which is signed on behalf of the Council of the College by Sir Ewen J. Maclean, the President.

The Minnitt Gas and Air Apparatus.—Gas and air administered by the Minnitt apparatus is a safe and satisfactory method of producing analgesia, although the apparatus is expensive and the nitrous oxide costly. It is recommended that its use be extended to the practice of midwives, provided they are specially trained in its administration, and to hospitals where there is no resident medical officer, provided that a medical examination of the patient has been made to ensure that there is no contraindication to the administration.

Chloroform.—Chloroform by any method should not be used by midwives acting alone. This conclusion has been reached with regret, but both immediate and delayed dangers, which are well recognized, occurred in this investigation, and it is not possible fully to guard against such occurrences if the administration of chloroform is in inexperienced hands. This finding should not, however, be taken as prejudicing the use of chloroform by registered medical practitioners, who, aware of the dangers, can take precautions to lessen the risks.

Paraldehyde per Rectum.—Paraldehyde per rectum cannot be recommended for use by midwives, mainly because it does not provide adequate analgesia at the time of the actual birth of the child.

The report is dated January, 1936, and is obtainable from the British College of Obstetricians and Gynaecologists, 58, Queen Anne Street, London, W.1, price 1s.

DURHAM UNIVERSITY REORGANIZATION

FUTURE OF THE COLLEGE OF MEDICINE

The first draft of the proposed statutes for the reconstituted University of Durham, prepared by Commissioners under Act of Parliament, has now been published. It will be remembered that two years ago a Royal Commission, under the chairmanship of Lord Moyne, was appointed to consider certain defects which had become apparent in the structure of the University. The report of the Royal Commission[1] recommended radical changes, the most outstanding being the amalgamation of the College of Medicine at Newcastle and Armstrong College (the latter a multi-faculty body providing instruction in arts and sciences) as a single unit—University College, Newcastle, with principal, council, and academic board. Under the University of Durham Act, 1935, statutory commissioners were appointed and enjoined to make new statutes in general accordance with the recommendations of the Royal Commission. The commissioners appointed were the Rev. F. H. Dudden (chairman), Countess Grey, Sir (Wilberforce) Ross Barker, Professor J. H. Priestley, Mr. Charles Williams (of Monkseaton), Professor G. R. Murray, Dr. T. F. Sibly, and Dr. Alexander Wood. Their powers continue until the end of the present year, but may be extended by Order in Council to the end of 1937.

The Proposed Statutes

The statutes make the University a body corporate with two divisions: the Durham Division, comprising the eight Durham colleges; and the Newcastle Division, comprising the College of Medicine and Armstrong College. The University will be governed by a visitor (the Bishop of Durham for the time being), a chancellor, a vice-chancellor, a pro-vice-chancellor, convocation (an assembly of graduates to meet at least once a year to discuss any matters relating to the University), a court, a senate, and boards of faculties, the court to have responsibility for finance, and such control of policy as that implies, and the senate to have responsibility for academic affairs. The two Divisions, Durham and Newcastle, will each be governed by a council and an academic board, Durham having a warden and Newcastle a principal as chief academic and administrative officers. A dean of medicine will be appointed by the council of the Newcastle division, to be responsible for guiding the organization and development of medical education and research, and for maintaining close relations between University College and the associated hospitals in which approved clinical instruction is given.

The Court and the Senate

The court of the University will consist of the principal officers, with the dean of medicine, four members appointed by His Majesty in Council, six by the senate, two by the council of each division, and three by the Northumberland and Durham county councils and the Newcastle city council. The court will determine the allocation of University funds, and, on recommendations from the senate, prescribe minimum salaries for professors and readers. Generally it will speak for the University on its administrative and financial side.

The senate will consist again of the principal officers, to whom will be added the deans of the eight faculties to be created, and a number of members appointed by the board of each faculty (three representing the faculty of medicine), also representatives of the academic boards of each division. The senate will be the supreme authority in all academic

[1] *British Medical Journal*, March 9th, 1935, p. 485.

matters. It will control the conditions qualifying for matriculation and other admissions to the various degrees and distinctions, will arrange the holding of examinations, approve the creation of new faculties, and generally regulate the discipline and work of the University.

The appointment and, if necessary, the removal of professors and readers will also rest with the senate. Under the old system the senate had no voice in such appointments, which rested with the separate colleges. By the proposed statutes, on the notification of a vacancy, the senate will constitute a committee to make recommendations as to appointment, and there is provision on such a committee for the representation, though not the preponderance of representation, of teachers in the division concerned. Professors and readers will retire at 65 as a general rule, though there is provision for extension by not more than five years. Part-time professors and teachers in the faculty of medicine will vacate their posts if they cease to be on the honorary medical staff of the associated hospitals.

With regard to degrees, the senate is to have power to accept examinations and periods of study passed at other universities or places of learning as equivalent to those of its own university, but it is expressly provided that in no case shall the senate confer a degree in medicine or surgery upon a person who has not attended in the University, during three years at least, the courses of study recognized for such degree or for one of the other degrees of the University. All degrees of the University are to be open to women.

The eight faculties are to be theology, arts and letters, medicine, science, applied science, music, commerce, and law, with a board of each faculty, virtually a committee of the senate, whose members include professors and readers in the subject assigned to the faculty. Each board will have power to advise the senate with regard to curricula and examinations, to submit the names of persons suitable to act as examiners, to consider and report on any subject of study or combination of subjects, and to report on regulations dealing with courses of study for degrees.

Medical Studies at Newcastle

In each of the two divisions, Durham and Newcastle, the university structure is repeated—that is, each will have a council and an academic board, the council to govern the college, manage the property, and control the finance, and the board to advise the council on academic matters, regulate instruction, and promote research. The Newcastle council will include the principal and the dean of medicine, six members appointed in the first instance by the council of the existing College of Medicine, twelve by that of Armstrong College, six by the local authorities, and five by the associated hospitals. It is expressly provided that none of the members appointed by the council of the College of Medicine shall be full-time teachers at University College, and not more than two shall be part-time teachers.

The Newcastle academic board will consist again of the principal and the dean of medicine, with the professors and readers who are engaged in teaching in the division and a certain number of representatives appointed by other members of the teaching staff who are not members of the board. The board will have a medical studies committee, the membership and duties of which are prescribed. All matters relating to the organization of medical education and research will be referred by the academic board to that committee for report. The committee will consist of those members of the board who are engaged in the teaching of medical students, together with six other clinical teachers on the honorary medical staff of the associated hospitals. The committee may recommend for appointment in each associated hospital clinical teachers from among the honorary medical staff and clinical tutors in such subjects as are thought desirable.

A building board is to be constituted to arrange for the disposal of the existing premises of the College of Medicine and to erect new buildings on a site in Queen Victoria Road, which has been acquired for the purpose. Temporary accommodation for the purpose of medical education pending the completion of the new buildings will be provided as required.

The Commissioners (whose address is 3, Sanctuary Buildings, Great Smith Street, Westminster, S.W.1) are prepared to receive and consider any representations made to them on the draft statutes before April 1st next.

Scotland

Edinburgh Royal Infirmary

At the adjourned general meeting of the Court of Contributors to the Royal Infirmary of Edinburgh on January 27th, when Sir Thomas Whitson, chairman of the Board of Managers, presided, it was announced that as a result of setting aside a special ward for operations such as hernia, haemorrhoids, etc., which did not detain patients long in hospital, the waiting list had been reduced to 2,800. Mr. Ian MacIntyre said it was expected that the cost of the upkeep of the new department for venereal diseases would be borne by the local authority in view of its statutory obligations in this matter. The chairman stated that the whole question of co-ordination between the municipal hospitals and the Royal Infirmary and other hospitals within the south-eastern area of Scotland was being considered, and would be taken up at once. A suggested constitution for a joint committee had already been drafted, although so far agreement had not been reached. A sum of £150,000 was still required to complete the various additions to the Infirmary, and an appeal for this amount would have to be issued shortly. The *Edinburgh Evening News*, through a shilling fund, had raised a sum of £42,000 for the extension fund in five years, and in recognition of this the managers had decided to name a ward in the new maternity hospital the "M'Phail Evening News Ward."

Working Hours of Probationer Nurses

In a report submitted by Dr. John Guy, Medical Officer of Health for Edinburgh, to the Public Health Committee of the Town Council on January 29th, it was proposed that probationer nurses, whether on day or night duty, should work a fifty-four-hour week. This scheme would necessitate an increase of seventy-four in the nursing staff of the general hospitals. It was proposed that the staff of the Western General Hospital should be increased from eighty-six to 120, of the Northern General Hospital from fifty-eight to seventy-five, and of the Eastern General Hospital from seventy-two to ninety-five, and that powers should be given to the matrons to add to these numbers in emergencies to a total not exceeding twenty. This would necessitate increased expenditure of £4,583. If similar arrangements were made at the Colinton Mains Hospital for infectious diseases and at the mental institutions, an additional cost of £3,300 would be involved. Further, a considerable building programme to accommodate the additional staff would be required. It was also intimated that the Eastern and Northern General Hospitals had ceased to be recognized by the General Nursing Council as training centres for nurses, which caused difficulty in securing the necessary number of nurses. When, however, a sufficient number of surgical beds were available in the Western General Hospital to give training to all probationers, the three hospitals would be regarded as one unit and the difficulty would disappear.

New Hospital for Greenock

Speaking at a ceremony on the site of the Rankin Memorial Maternity and Children's Hospital, Greenock, Provost J. W. Bell said that Miss M. D. Rankin's benefactions in the past had included the creation of a fund for cancer research in Glasgow University, and £10,000 each from her brother and herself to help the corporation with the central area slum clearance scheme of Greenock. Two and a half years ago Miss Rankin had made an offer through Provost Drummond to build a maternity and children's hospital. Difficulties had arisen which caused delays, but now, in order to give the corporation a free hand to provide for the future and to work in conjunction with the Department of Health, Miss Rankin had handed over the sum of £40,000 to the corporation. The new hospital will at first have accommodation for fifty-six beds, and it has been planned on modern lines and so arranged that future extensions can readily be undertaken.

England and Wales

The L.C.C. and Advertisements for Medical Staff

At the meeting of the London County Council on February 4th Dr. Henry Robinson put the following questions to the chairman of the Mental Hospitals Committee:

(1) Whether the committee decided some months ago to advertise vacancies among the medical staff under its control in the *Medical World* in addition to the *British Medical Journal* and the *Lancet*.

(2) Whether at the last meeting of the committee before Christmas it was decided to discontinue these advertisements because it appeared they were of no practical value to the Council.

(3) Whether the committee has had under consideration requests that the Medical Practitioners' Union, which publishes the *Medical World*, should be recognized as a negotiating body on matters affecting the medical staff under the Mental Hospitals Committee.

(4) Whether the committee has refused such recognition on the ground that requests over a period of eight months for information as to the numbers of those medical men who are members of the M.P.U. have had nothing but negative results.

Mr. J. Speakman, chairman of the Mental Hospitals Committee, replied that the answer to (1) was in the affirmative, in March, 1935; the answers to (2) and (3) were also in the affirmative; and the answer to (4) was that the Union was asked to communicate the extent to which it represented the medical staff, and the information had not yet been received.

Dr. Robinson further asked the chairman of the Hospitals and Medical Services Committee:

(1) Whether the committee decided several months ago to advertise vacancies among the medical staff under its control in the *Medical World* in addition to the *British Medical Journal* and the *Lancet*.

(2) Whether this practice is still being followed.

(3) Whether his attention has been drawn to the action of the Mental Hospitals Committee in abandoning a similar practice, and the reason given for doing so.

(4) Whether the *Medical World* is the official organ of the M.P.U.

Dr. Somerville Hastings replied in the affirmative to the first question; as to the second question the matter of continuing the practice was under consideration; the answer to the third and fourth questions was in the affirmative. Dr. Robinson, owing to what he considered the unsatisfactory nature of this reply, moved the adjournment of the Council. He said that under the administration of former Councils vacancies on the medical staff were advertised in the *British Medical Journal* and the *Lancet*. Shortly after the present Council was elected a proposal was put before the Hospitals and Medical Services Committee that these advertisements should also appear in the *Medical World*. He opposed this on the ground that the paper had few readers and the Union was declining in membership. Dr. Hastings declared that neither of these statements was true, and, despite continued opposition, it was decided to insert the advertisements. At that time both Dr. Hastings and Dr. C. W. Brook were members of the Union—Dr. Brook was also a member of the Hospitals Committee—and they both held, or had held, he thought, honorary posts in the Union. The Union was also seeking to be recognized as the body to represent the medical staff when any of the conditions of their service were under discussion. The Mental Hospitals Committee took similar action, but after eight months discontinued the advertisements, because there seemed to be no practical advantage to the Council. That committee had also declined to recognize the Union because it could not show that it had one single member among the large medical staff the committee employed. A new situation had been created by the action of Dr. Brook in resigning from the Union and his reasons for doing so. Dr. Brook had stated that the *Medical World* had contained editorial statements so obviously at variance with facts that the paper was made ridiculous; that the statistical return which the Union made to the Registrar of Friendly Societies contained gross inaccuracies, and that similar inaccuracies had been submitted by the Union to the T.U.C.; that the Union claimed to have elected 1,541 members during 1934, with a net increase during the year of 1,416, whereas he believed the total number elected was only 232. These were Dr. Brook's charges, but Dr. Robinson said that he could himself add that the financial statement for 1934 appeared to disclose a net fall in membership of about 150. The Council was concerned when a paper in which its advertisements appeared was the organ of a union which conducted its affairs like this. He submitted that these advertisements should be discontinued. He made no reflection upon the personal integrity of Dr. Hastings, but he thought he had shown a deplorable lack of judgement. Dr. Florence Barrie Lambert seconded the motion. Dr. Somerville Hastings said that it was not often that the rival claims of different trade unions were debated in that Council, and he regretted to see the members of one union feeling so strongly against another organization as to bring the matter forward in this way. He himself had nothing whatever to do with the Mental Hospitals Committee. He was not a member of it, and had not been a member for two or three years, and he had no part in its decision to advertise in the *Medical World*. He was, until recently, a member of the Medical Practitioners' Union, but he had never held any office in it of any sort, for payment or otherwise. A little time ago the question came forward of advertising medical appointments, and it was debated whether the committee was wise in advertising only in the *Lancet* and the *British Medical Journal*. He thought it was on the suggestion of the Medical Officer that in the case of offices held by general practitioners some value might be obtained by advertising in the *Medical World*. He was led to understand, and still understood, that that organ had a large circulation. In view of these facts the proposal to adjourn the Council on a matter of this kind was absurd, and he felt that the time of the Council was being wasted.

A division took place on Dr. Robinson's motion, "That the Council do now adjourn," and it was negatived: Ayes 51, Noes 70.

Association of Industrial Medical Officers

The second meeting of the Association of Industrial Medical Officers was held at the London School of Hygiene and Tropical Medicine on January 24th and 25th under the chairmanship of Dr. H. B. Trumper, Imperial Chemical Industries Limited, in the absence, owing to illness, of Dr. N. Howard Mummery. On the first day a discussion on "Physical Standards in Industry" was opened by Sir David Munro, Secretary, Industrial Health Research Board, followed by Dr. H. H. Bashford, Chief Medical Officer to the Post Office. Sir David, in putting forward a plea for co-operative investigation, was of the opinion that some correlation of the present standards as laid down by different industrial concerns in the country might lead to a research which would be of national importance. On January 25th Dr. T. O. Garland, Medical Officer to Carreras Limited, in a paper on "The Relation between the Industrial Medical Officer and the General Practitioner," stressed the great importance of closer co-operation and contact between industrial medical services and other medical practitioners, and referred to the place of treatment in the industrial clinic. He also dealt briefly with the position of the employee and employer in relation to the industrial doctor. Dr. J. C. Bridge, Chief Medical Inspector, Home Office, discussed the relation of the certifying surgeon to the industrial medical officer.

London Health Services

The detailed review of the public health work carried out in London by the London County Council, the City Corporation, and the Metropolitan Borough Councils, which formed part of the annual report of the Ministry of Health for the year 1934–5, has been reprinted as a separate publication, with a special preface by Sir Kingsley Wood, under the title *London Health Services*. The preface points out that the review is based on a general survey of local authorities' health services in London undertaken by officers of the Ministry. The publication is obtainable from H.M. Stationery Office or from any bookseller, price 1s.

Reports of Societies

ACUTE APPENDICITIS

At a meeting of the Medical Society of London on January 27th, with Professor GEORGE E. GASK in the chair, a discussion took place on acute appendicitis.

Mr. ZACHARY COPE said that although in early days appendicitis was often treated by the physician, it had been regarded since the beginning of the century as a surgical condition. The main problems had been to decide the best time to operate and what should be done at operation. One of the great pioneers in surgical treatment, Murphy of Chicago, by 1904 had performed almost 2,000 operations for appendicitis and had reduced the operative mortality to 4 per cent. Murphy emphasized the great importance of operating on all cases early. Meanwhile Ochsner was practising a different method of treatment, assisting the change from a dangerous and acute condition into a relatively harmless one by inhibiting peristalsis and giving the peritoneum an opportunity to remove the existing infection by absorption or by the formation of adhesions, whilst at the same time reducing the virulence of the infective material.

Immediate Operation

The majority of surgeons had followed the teaching of Murphy. In 1913 Burgess wrote: "Every case should be submitted to operation as soon as possible, quite irrespective of the stage of the disease, the proper influence of the latter being merely to decide the extent of the operative procedure." Mr. Cope discussed the advantages of the so-called immediate operation, the removal to a large extent of the infective focus, the draining where necessary of the infected field, and the saving to the patient of the trying time elapsing before operation by the delayed method. It might be counted either for or against immediate operation that it left little to the judgement of the operator. Among its disadvantages in cases of perforation were said to be the danger of spreading the infection, the more frequent occurrence of intestinal obstruction, and so forth. When the operator had experience and judgement these complications were uncommon, but the criticism had some point, especially when the work of inexperienced operators was in question. Mr. Cope went on to give some comparative statistics from various sources, but he admitted that statistics could not solve the problem, and it was difficult to be sure that figures from different clinics were comparable or that observers adopted the same criteria. Some, for example, classified rather extensive diffuse peritonitis as general peritonitis; others reserved the term for cases almost moribund. There was need for a thorough investigation into the mortality of appendicitis by an impartial body such as might be appointed by the Association of Surgeons or the Medical Research Council.

He had been brought up in the "immediate operation" school. He had himself been the subject of a mistaken diagnosis, and therefore of delayed operation, which laid him aside for four months. For twenty years he practised prompt operation as taught by Murphy, and obtained good results. In a series of 188 cases (123 unperforated and sixty-five perforated) only four died. But he had had from time to time experiences which made him think that in carefully chosen cases—and each case must be judged on its merits—delay might be the better plan. It would be a retrograde step to teach that delay was a correct treatment for appendicitis, and delay should not be practised except by surgeons who had had a large experience enabling them to acquire the clinical judgement necessary to detect that minority of cases in which it would be beneficial to delay for a time. It was sometimes said that the operation for appendicitis was a minor one; but very often it called for great dexterity and judgement if it was to be carried out without undue risk.

Expectant Treatment

Mr. R. J. MCNEILL LOVE spoke particularly of the stage when the condition had become limited to the right iliac fossa or the pelvis, and the choice lay between immediate operation and expectant measures. Immediate operation at this stage might be very difficult. He gave an analysis of cases in which expectant treatment had been followed. In 65 per cent. the infection subsided and three months later the appendix was removed. In about 25 per cent. of cases an abscess formed, suggesting that the infection was becoming limited and the resistance of the patient increasing. Expectant treatment might still be carried on in such cases, but there were indications, such as increase in size, which necessitated the opening of the abscess. In the remaining 10 per cent. expectant treatment must be abandoned owing to increase of rigidity and elevation of pulse and temperature. Expectant treatment, properly applied in suitable cases, where localization had taken place, carried a mortality of about 3 per cent., which, if anything, was less than that obtained by immediate operation by experienced surgeons; and the majority of the patients had a clean appendicectomy some three months later, a smaller number requiring simple drainage, which usually presented no difficulty. He believed that one reason why surgeons hesitated to adopt expectant measures was psychological. If a case was treated on delayed lines and succumbed a deep impression was made on all concerned, whereas if death followed immediate operation it was accepted philosophically.

Problem of Drainage

Mr. H. C. W. NUTTALL of Liverpool spoke of the fallacy of statistics of cases classified according to individual predilection. His own series of 632 cases with a general mortality of 2.53 per cent. did not represent the whole of the experience he would like, and he would speak more confidently if they numbered a couple of thousand. Differences might be presumed between the results of a general surgeon who was practising surgery regularly and one whose opportunities of operating for appendicitis were only occasional. But he could see no great difficulty in teaching the man who did not operate regularly, and he rather gathered that it was easier to teach a practitioner to operate immediately, taking all due care, than to instruct him in expectant treatment, watching a patient who might go wrong at any time. On surgical technique one important point was the question of haemorrhage in governing drainage; in the vast majority of straightforward cases he did not drain, but if there was any sign of haemorrhage he put in drainage.

Mr. HUGH WHITELOCKE of Oxford said that in his service of forty beds something like 120 cases of acute appendicitis were seen in a year. There was no hesitation about immediate operation in all but two or three of those cases. The figures had definitely improved of late, and he ascribed the improvement to the introduction in the severe toxic cases of intravenous drip, and also to the careful suction of the local peritonitis especially from the pelvis. Mr. W. E. TANNER referred to the value of transfusion of 200 c.cm. of blood in certain cases of appendicitis, especially in old people. Professor PATERSON ROSS pleaded that attention should be focused not so much on the appendix or even on the surgeon but on the reaction of the peritoneum to the infection. He was in agreement with those who operated early, as soon as the diagnosis was made, but he could conceive of some cases in which it would be right not to operate but to institute delayed treatment so as to get a better peritoneal response. Even when the disease did show a diffuse peritonitis his practice was to remove the appendix for the same reason as he would remove a rusty nail from an infected joint. But the less trauma done at operation the better, and that was ensured if one knew exactly where the appendix was.

Sir JAMES WALTON said that he could assure Mr. Love that many cases, after a delay of a few weeks, so far from presenting a simple operation, presented one of the most difficult that could be carried out within the abdomen. The appendix was bound down by masses of adhesions, and its removal became really a major operation. It must not be forgotten that the enormous improvement in the results of operation of recent years was due to the general practitioner sending cases up for

earlier treatment. With regard to second-stage cases, as a rule he believed it better to operate on all of them. His general teaching would be that there was one time to operate, and that was as soon as one saw the case, but he admitted that there were a few exceptions.

Value of Statistics

The remainder of the discussion turned chiefly on the value of statistics. Mr. JULIAN TAYLOR pointed out some statistical fallacies, especially when bearing on a small number of cases. Mr. G. H. COLT said that he had submitted particulars of 1,400 cases treated consecutively over seventeen years to an expert statistician, and one of his conclusions was that the number of variables was so great and the material so heterogeneous that no conclusion could be drawn for or against drainage. Mr. J. E. H. ROBERTS complained of the lumping together of some of the statistics which Mr. Cope had brought forward. For his own part he did not believe that any usable body of statistics had so far been made available, and he warmly supported the proposal that statistics should be obtained according to a well-formulated plan from hospital surgeons. Such statistics would only be valid if a form were filled up as soon as each case was seen, the form being submitted to a professional statistician.

THE PRESIDENT complimented the speakers upon a wise exposition of the whole subject.

CLINICAL PATHOLOGY OF SKIN DISEASES

The ninth annual meeting of the Association of Clinical Pathologists was held at the Wellcome Research Institution, London, on January 25th, with Dr. J. G. GREENFIELD in the chair.

Dr. I. MUENDE (London), discussing the clinical pathology of skin diseases with particular reference to parasitic and fungal infections, pointed out that in acarus infection of human type the rash might be widespread and the manifestations varied, but that the characteristic burrows would be found between the webs of the fingers, on the glans penis, in the axillary folds, and in women under the breasts. The parasite could be demonstrated by shaving off the skin at the end of the burrow and examining it under the microscope. In infection of animal type burrows might be missing ; the eruption was usually confined to the hands and arms, and would disappear on removal of the infecting pet. The speaker laid stress on the identification of the type in fungal infections ; this was best accomplished by cultural methods. In those infections acquired from the cat, dog, or canary the removal of the source was essential. Kerion was usually due to animal infection. The black dot type of ringworm was becoming much more common ; in this type the extraction of hairs for examination presented difficulties which were best met by the use of a comedo extractor. Achorion infection might be acquired from mice, in which animals it produced a fatal encephalitis. Dr. Muende recorded one case which had been associated with an epidemic among mice in the place of work. Moniliasis was a not infrequent cause of paronychia ; the fungus could be identified by scrapings taken from under the nail bed, even in the absence of pus. It was particularly prone to occur in barmaids, bakers, and pastrycooks. Dysidrosis represented a reaction to sensitization to a fungus infection, usually by an epidermophyton between the toes. A useful guide to the presence of such sensitization was the reaction produced by the intradermal injection of the soluble products from a culture of mixed fungus of the same type. Eczema might be due to sensitization to vast numbers of " eczematogens " ; the speaker described the " patch test " for the identification of such sensitization.

Protozoal Infections

Professor C. M. WENYON spoke on the clinical pathology of protozoal infections. He pointed out that amoebic dysentery was probably not so common in this country as in the years succeeding the war, but that there were still many carriers of pathogenic amoebae. Some of them were not aware that they had ever had amoebic dysentery, and they experienced very little inconvenience. Amoebae might be found in vast numbers in the stools of cases with very few symptoms. This had led some people to conclude that there were two types of *Amoeba histolytica*, one, which had been called *dispar*, being of relatively low pathogenicity. Professor Wenyon discussed the difficulties in the identification of amoebic infection, and stressed the necessity of examining fresh specimens of faeces. Repeated examinations might be necessary ; protozoa were rarely found in very liquid faeces. Amoebae might be detected in scrapings taken from ulcers through a sigmoidoscope when they could not be found in the faeces. All intestinal parasites except giardia could be cultivated, but this method was only possible in institutions dealing with very large numbers of cases. This organism inhabited the duodenum, and could be obtained by means of duodenal intubation. Cholecystitis had been ascribed to it, but the speaker did not regard this as proved. In the diagnosis of protozoal blood infections a good stain was the first requisite. Except in the case of kala-azar, culture was useless as a diagnostic measure. In the diagnosis of bilharzia and schistosoma infestation a useful aid was the intradermal injection of the appropriate antigen.

Dr. G. W. GOODHART (London) pointed out that while a diagnosis of trichomonas infection of the vagina could be made from fresh secretion the parasites could not be demonstrated in dried films. Dr. R. V. FACEY (Bournemouth) stated that he had encountered very many cases of vaginal trichomoniasis, and that these responded readily to treatment with arsenical pessaries.

The Blood Sugar in Diabetes

Dr. H. P. HIMSWORTH (London) referred to the significance of blood sugar levels in diabetics, and asked why the blood sugar rose in diabetes. The classical explanation was that there was failure in carbohydrate storage. He suggested, however, that the rise of the blood sugar was a compensatory phenomenon. He showed graphs indicating the course of the blood sugar and of the ketosis in a severe case of diabetic coma. When sugar was given in large amount without insulin the blood sugar rose, but the ketosis became less. The speaker cited an instance of diabetic coma in which the blood sugar had been forced up by the administration of glucose to over 1,000 mg. per cent., with a decrease in ketosis and corresponding improvement in the clinical condition. On giving sugar to the diabetic more sugar was excreted than was taken ; similarly the establishment of diuresis, though it had no effect on the blood sugar level, would result in increased excretion of sugar. The main factor in diabetes might be an incapacity to utilize carbohydrate until the blood sugar had risen to a certain level above the normal ; on this account it was harmful to withhold sugar from the diabetic. The level of the blood sugar bore no relation to the clinical condition.

Dr. S. C. DYKE (Wolverhampton) agreed that more harm was done by withholding than by giving excess of sugar to the patient in diabetic coma. He pointed out, however, that a high blood sugar encouraged diuresis, and therefore favoured the further dehydration of the patient. Dehydration was the main danger in coma, and reduction of the blood sugar was a necessary step in combating it. In the established diabetic continued hyperglycaemia might be one of the causes of the vascular degeneration, which was the main cause of the morbidity.

Diagnosis of Teratoma Testis

Dr. J. A. BOYCOTT (London) described the diagnosis of teratoma testis by means of the Aschheim-Zondek procedure. The method depended upon the fact that the sufferers from malignant tumours of the testis excrete in the urine excessive amounts of gonadotropic hormone ; this was not the case with simple and inflammatory tumours. Two sets of mice were used. One series received graduated injections of concentrated urine, and the other of unconcentrated. By means of a table it was possible to calculate the amount of gonadotropic hormone excreted. The test was useful in diagnosis and also in controlling the results of operation and radiotherapy.

EPIDEMIOLOGY OF MALARIA

At a meeting of the Royal Society of Tropical Medicine and Hygiene on January 16th, with Sir ARTHUR BAGSHAWE, the President, in the chair, Colonel C. A. GILL, I.M.S. (retd.), expert adviser on malaria to the Ceylon Government, read a paper on the recent malaria epidemic in Ceylon and gave an account of his study of the epidemic.

Colonel Gill stated that, in spite of the great advance of knowledge during the past fifty years, the cause of malaria epidemics was still imperfectly understood, and medical science was powerless to prevent their occurrence or to check materially their course. He held the view that the main hope of increasing the scope and effectiveness of anti-malaria measures, both in connexion with the prevention of epidemics and the control of endemic malaria among the rural population of the Tropics, lay in filling the gaps in the knowledge of the epidemiology of malaria, and more especially of the life-cycle of the malaria parasite. After summarizing previous work on epidemic malaria, Colonel Gill described with the aid of lantern slides the salient features of the Ceylon epidemic. The most striking were its great intensity, its sudden and almost simultaneous onset over wide areas, its association with a severe and prolonged drought, and the occurrence of a second wave of mortality after the lapse of about six months. These features, some of which had not previously been recorded, were not readily explicable in terms of accepted views regarding the causation of malaria epidemics. In particular, it was difficult to account for the sudden and widespread outbreak of epidemics at a time when gametocytes could scarcely be detected in the peripheral blood. He then described in detail the observations which led him to conclude that the initial epidemic was not due to new infections, as hitherto supposed, but to an "epidemic of relapses" among human carriers. Although children constituted the most susceptible section of the community, no change in the age distribution of the patients attending hospital during the first week of the epidemic was noted. Even more striking was the fact that no increase of mortality occurred among children until the seventh week of the epidemic, although the average duration of the illness of the children who died from malaria in hospital during the first two months of the epidemic was eight days. The inference drawn from these observations was that children escaped infection almost completely during the first four weeks of the epidemic. Since it was not conceivable that adults alone should have been infected during this period, it must be concluded that the sickness during the first four weeks of the epidemic was mainly due to the occurrence of relapses among those harbouring malaria parasites. It was shown that this interpretation of the mode of onset of the epidemic not only accounted for the sudden and widespread outbreak of sickness at a time when gametocyte carriers were few, but it enabled a convincing explanation to be given of the form and character of the morbidity and mortality wave, and more especially the association of four subsidiary waves of morbidity, the second of which was the largest, at intervals of about one month with three waves of mortality. In regard to the cause of the "epidemic of relapses," it was shown that both the primary and the second wave were preceded by about three weeks by a sharp rise of atmospheric humidity, and it was tentatively suggested that this circumstance was in some way responsible for precipitating the "epidemic of relapses." No conclusion could be reached on this point, but it was held that, whatever the precise cause of these relapses might be, the occurrence of a qualitative change in the malaria parasite at the commencement of the epidemic was fraught with implications of far-reaching importance in the endemiology and epidemiology of malaria.

Sir RICKARD CHRISTOPHERS pointed out that any considerable enhancement of malaria in a community could be termed an "epidemic," but there were many types differing in their mechanism of origin and characteristics. The type best known in India was "autumnal epidemic malaria" or "regional epidemic malaria," which had, among other things, a marked seasonal relationship, an extremely sudden onset synchronous over hundreds of square miles, and a high associated mortality. Though the Northern Indian epidemics were apparently related to "flooding" and the Ceylon epidemic to "drought," the similarity in other respects was so striking that the Ceylon epidemic must be placed in this category. Sir Rickard Christophers then discussed facts relating to Indian epidemics in the Punjab based on the epidemic figure. The epidemic of 1908 had two simultaneous but distinct waves, while that of 1892 was the greatest single epidemic of this type of all time, the extra mortality in two months approximating to 150,000 deaths. The fundamental causation of these epidemics was meteorological, but this was not the whole story. The most important point in Colonel Gill's theory concerned the first wave—namely, the outburst of cases starting almost everywhere about October 27th. This was unassociated with the mortality one might have expected in young children. The contention that this sudden outburst was due mainly or solely to relapses was startling, but it must be given serious consideration. He asked if there was collateral evidence from the dispensaries that these earlier cases were of a milder character than the later ones, although evidence of such mildness did not necessarily prove the relapse theory, since the mildness might result from numerically poor infections in anophelines.

Colonel S. P. JAMES said that the primary wave in the Ceylon epidemic was very puzzling, and its explanation was new and unexpected. Colonel Gill evidently regarded the drought as the prime and essential cause, and attached little or no importance to the increase in *Anopheles culicifacies* which accompanied it. In Colonel Gill's opinion, before the sudden explosive onset on October 27th there had been an equally sudden and explosive onset among human malaria carriers. There might be other explanations, however, such as that of Dr. De Verteuil—namely, an invasion of infected mosquitos from somewhere outside the particular epidemic area in which the onset was explosive. Kligler had absolute proof of a flight of anopheles from infected villages in Palestine of over twelve kilometres, and De Verteuil had records of these strange excursions of anopheles every year in Trinidad. After prolonged drought, migration always occurred on an immense scale. Colonel James then pointed out that if Colonel Gill could produce some of the temperature charts of the earliest cases in the epidemic he could tell him whether they were relapses or primary attacks.

Sir MALCOLM WATSON said that a constructive policy was necessary; it was urgent that Ceylon should get every possible help, because epidemics would occur in the future as in the past. Colonel Gill's pessimism in regard to the control of malaria in the large free populations of the rural areas was quite unjustified. After showing how epidemic malaria had been controlled in Malaya, he pointed out that money would be wasted unless the prevention of malaria was preceded by co-ordinated research on a much larger scale than had hitherto been the case. The cause of oedema in the Ceylon hospitals needed investigation. Was it due to hookworm or to malaria, or to both? Housing, water supplies, and site selection, even for the smaller social units, urgently needed consideration, as did also anti-malarial drugs and hospitals. It was important to determine why South Ceylon escaped the recent malarial epidemic: wells and rivers were present there as well as in the centre and north of the island. Further information would be found in his memorandum on the subject.

Professor D. B. BLACKLOCK said that Colonel Gill had stressed the importance of two factors in the epidemiology of malaria. The first concerned the inherent periodicity of the simple tertian parasite and resulted in an epidemic of relapses; the second concerned the number and transmitting capacity of the anopheline vector and resulted in an epidemic of fresh infections. The idea of an epidemic of relapses was not entirely new, and Liverpool workers had concluded that the season of the year had a preponderating influence. One group of cases treated and observed in the period July to September gave a relapse

rate of 38 per cent., while another group treated in the period January to April gave a relapse rate of 94 per cent. Analysis of the meteorological reports showed that the only factor which correlated with this seasonal difference in relapse rate was temperature: the lower the mean daily temperature, the higher was the relapse rate. Atmospheric humidity was insignificant. He emphatically disagreed with the view expressed by Colonel Gill in regard to the powerlessness of modern medicine to prevent or check malaria epidemics. The fact was that modern medical science had never yet had an opportunity of showing what it could effect in the prevention of malaria and other tropical diseases.

Sir WELDON DALRYMPLE-CHAMPNEYS agreed that all the factors concerned in malarial epidemics were not known. The three most important in Ceylon were the increase in the breeding of *A. culicifacies* in pools in the river beds produced by drought; the fact that the population in the wet zone was very little "salted" to malaria; and the under-nourishment of the people owing to failure of the paddy crop.

Colonel GILL in reply said he had not meant to be pessimistic or to depreciate what had been done, but in the northern area of Ceylon, which constituted 24 per cent. of the area of the island, they were unable to offer a practical scheme at the moment. What he meant to convey was that the present knowledge of malaria did not reveal how epidemics could be prevented.

EXPERIMENTAL NaCl DEFICIENCY

At the meeting of the Royal Society on January 30th a paper by Dr. R. A. MCCANCE on experimental sodium chloride deficiency in man was communicated by Professor E. MELLANBY.

Three subjects were given a weighed diet containing minimal quantities of NaCl. The fluid intake was not restricted. The protein intake, which would have been very low on natural foods alone, was augmented by incorporating "ashless" casein in the diet. Sweating was carried out in a radiant heat bath and the sweat was collected quantitatively on mackintosh sheeting. Urine, faeces, and insensible perspiration were also collected. The sodium, chloride, nitrogen, and potassium balances were determined on two subjects.

The deficiency, which was severe, led to a loss of 25 to 35 per cent. of the body sodium. The symptoms were loss of the sense of flavour, considerable weakness and fatigue, a sense of constriction in the chest on the least exertion, and cramps. The last were widespread, not very severe, and controllable. The subjects at first lost weight *pari passu* with sodium, but later the weight ceased to fall and thereafter fluctuated without reference to the sodium. The blood became very viscous. The cell counts, haemoglobin, and plasma proteins rose. The concentration of sodium and chloride in the plasma fell and also its osmotic pressure. The chloride in the corpuscles also fell. The alkali reserve did not change. The blood urea rose to between 70 and 80 mg. per 100 c.cm. Both subjects showed a progressively negative nitrogen balance as the deficiency grew worse, and one subject lost in all 42 grams of nitrogen. The potassium balance tended to run parallel to that of nitrogen. Many of these symptoms and signs, and also the blood changes, closely reproduced clinical or experimental Addison's disease, but there were points of difference also—for example, no fall of blood pressure.

As sodium chloride was restored the weight rose, the nitrogen balance became positive, the blood urea fell, and health was regained.

At a meeting on January 4th of the Société de Biologie Dr. F. VAN DEINSE gave an account of his attempts to immunize rabbits against tuberculosis by intravenous and subcutaneous injections of avian tubercle bacilli, Type S, killed by heat. He claimed to have succeeded in immunizing rabbits in this manner against massive intravenous injections (1 mg.) of live cultures of the same type.

CORRESPONDENCE

Is Cousin Marriage Dangerous?

SIR,—There has long been a vague belief that human inbreeding is undesirable, and some unions of blood relations are forbidden by law. Recent research has shown that certain diseases are vastly commoner among the offspring of blood relations than in the general population. In Western Europe marriages of first cousins rarely amount to more than 1 per cent. of all marriages. The following percentages of first-cousin marriages have been found among the parents of patients with certain diseases:

Xerodermia pigmentosa (Siemens's data, after 1906 only)	47	per cent.
Retinitis pigmentosa (Usher's cases)... ...	27	,, ,,
Juvenile amaurotic idiocy (Sjögren's cases) ...	15	,, ,,
Ichthyosis congenita (Cockayne's data) ...	14	,, ,,

These examples might be considerably multiplied. Unfortunately, however, research into rare diseases gives us little idea of the importance of the phenomenon for general health.

The fact that the children of first cousins are some thirty times more likely to develop retinitis pigmentosa than the general population does not tell us whether abnormalities of this type (in genetical language, due to rare autosomal recessive gene substitutions) are sufficiently common to render cousin marriage undesirable.

Animal experiments give no clear answer. In some species the inbreeding of members of wild populations leads to the appearance of numerous recessive abnormalities. In others it does not.

For this reason the Committee on Human Genetics appointed by the Medical Research Council have obtained the co-operation of hospitals in a large-scale inquiry on this question. All patients in the participating hospitals are being asked whether their parents were related, and if so, how. It was thought that any less comprehensive inquiry would be worthless, since the data on animals suggest that not only congenital abnormality, but liability to certain infections or degenerative diseases, might be due to recessive genes.

The preliminary results are distinctly encouraging. Certain rare conditions seem to be rather commoner among the progeny of related than among those of unrelated parents. Nevertheless, the results will not be statistically significant until at least three times the present number of cards have been completed. It is particularly desirable to obtain more data regarding children, and from country districts, where more inbreeding occurs than in towns.

While, therefore, the committee acknowledge with the utmost gratitude the assistance so far given by hospital staffs, they hope that the same efforts will be continued until really adequate data are available. The co-operation of additional hospitals would also be most welcome.—I am, etc.,

London, Jan. 31st. J. B. S. HALDANE.

Thyroxine in Otosclerosis

SIR,—In the annotation you published on January 25th entitled "Thyroxine in Otosclerosis" the statement is made that if the tests of hearing acuity had been carried out by an audiometer the results published in Dr. Albert A. Gray's paper would have had a much-enhanced value. This paper was read in May, 1935, and during the time between then and his death Dr. Gray carried on the work, enlarging the number of his patients and using a pure-tone audiometer.

The investigation is still going on. The work is being done in the Ferens Institute by workers who are familiar

with Dr. Gray's own methods, and results will from time to time be published which will, I hope, indicate the duration of the improvement where it occurs, the number of injections found to give the best results, and, so far as possible, the subsequent history of the patients.—I am, etc.,

London, W.1, Feb. 3rd. F. J. CLEMINSON.

Prostatectomy

SIR,—I note with interest the statement made by Mr. Morson in his article on "Prostatectomy" (*Journal*, February 1st, p. 195) that "in 1916 Thomson-Walker and Judd independently introduced the method of open operation. . . ."

In Rutherford Morison's *Surgical Contributions*, vol. ii, on pages 709–10, may be read the following extract from a paper on "Major Abdominal and Pelvic Operations: a Record of Work from the Old Royal Infirmary, Newcastle-on-Tyne," which appeared in the *Edinburgh Medical Journal* in February, 1907:

"I do not like the ordinary operation of suprapubic prostatectomy, in spite of the published results. It is done in the dark, removes more than is essential, occasionally requires considerable force, and is only accomplished by tearing all resisting tissues. No operation with these disadvantages can have come to stay. I do not yet know that in detail the operation I perform is a solution of the difficulty, but it is based on two important principles: (1) to see the cause of the obstruction, and (2) to remove it only.

"The bladder is widely opened transversely with the patient in the Trendelenburg position, and by means of retractors, mops, and a good light the internal meatus is fully exposed to view, and the prostatic urethra explored by a finger. Any obstruction is cut away with punch forceps, or adenomata are enucleated, all bleeding is arrested, and the bladder wound is sutured except where the drainage tube emerges.

"Four cases: four recoveries."

This would appear not only to establish clearly Professor Morison's priority of introduction of the open method of prostatectomy but also to add no less than nine to the number of years which, as Mr. Morson says, elapsed before it was realized that this was another milestone in the progress of prostatic surgery.—I am, etc.,

Newcastle-upon-Tyne, Feb. 3rd. JAMES H. SAINT.

SIR,—The able résumé of the present position in regard to prostatectomy which formed Mr. Clifford Morson's address at Melbourne must be of the greatest general interest. One aspect of the matter was of peculiar interest to me. I feel that the incidence of recurrent obstruction is considerably higher than is commonly supposed, and this quite apart from the cases where it is due to fresh adenomatous formation or to malignancy. Although I can produce no figures, I have seen several cases, and a survey of the literature suggests that it is no infrequent sequel to operation, especially if the gland has not caused stretching of the internal meatus. The cause of the trouble is ascribed to cicatricial contraction, and was common following the Freyer technique but not unknown with Thomson-Walker's if an adequate amount of shelf was not removed. A striking feature in three cases with which I had to deal, one of them initially my own, was the very rapid onset. In a matter of three or four weeks a vesico-prostatic opening through which the gland had been removed, and which in my own case at least had admitted three fingers, had completely disappeared and was represented only by a dimple surrounded by tissue of the greatest density and thickness, comparable to that found in the pylorus in infantile stenosis. The suprapubic fistula was, of course, unhealed. The sequence is not always so dramatic, and may take years to manifest itself.

The bladder neck is equipped with two muscles—the sphincter and the trigonal muscle. The latter is fan-shaped, and spreads forwards from its origin at the inter-ureteric bar to hook round the former and take insertion into the floor of the urethra in the region of the verumontanum. By its contraction it pulls open the sphincter, and is accordingly its antagonist. Following the older method of prostatectomy, it was thrown out of action, and its opponent, freed moreover from its moorings, had full liberty to close the bladder exit. I suspect that this is what primarily happens in the cases under discussion. It explains the suddenness of the occlusion and the solidity of the screen. Such rapid fibrosis is an extremely unlikely process, especially against a rising intravesical pressure, for healing is presumably progressing in the wound also. The very characteristic dimple can only be formed by the closure of a circular orifice, and not by irregular scarring. The constriction does not occur at the site of the raw area in the prostatic bed, but invariably at the bladder neck, which should be the first part to epithelialize.

Harris reports 371 cases treated by his plastic method not one of which has shown this complication, and the reason seems to be that the trigone, and with it the posterior portion of the sphincter, is tethered down to the torn capsule, and so contracture is obviated. It may even be that some degree of function is restored to the trigonal muscle. It would appear that his procedure, in addition to its other advantages, deals also with a problem which, if not the most pressing, is by no means the least important.—I am, etc.,

London, W.1, Feb. 3rd. STEPHEN POWER.

SIR,—Mr. Clifford Morson's excellent address, appearing in the *Journal* of February 1st, interests me considerably inasmuch as I published in the *Lancet* of January 13th, 1934, a description of my own technique for complete closure of the bladder with the aid of a two-way catheter and a thermo-flask irrigator described by me in the *Journal* and in the *Lancet* in 1933. With my apparatus sepsis and secondary haemorrhage, which Mr. Morson sometimes fears, can be prevented so long as it is used as advised in pre-operative, operative, and post-operative treatments, and providing the case is not prone to catheter fever, which should be ascertained during the pre-operative period.

This apparatus is now made for me by the Medical Supply Company, Wimpole Street, W.1.—I am, etc.,

London, W.1, Feb. 3rd. MORTON WHITBY.

Corneal Grafting

SIR,—In my early cases of keratoplasty I followed the teaching of Tudor Thomas, whose method was to prepare the graft and its bed by shelving with the idea of preventing the graft from slipping into the anterior chamber and to avoid damage to the iris and lens. In his recent paper Stallard[1] describes a similar technique, which he has modified by the use of a special corneal knife. In 172 cases Elschnig, using a mechanical trephine, lost the graft in one case only and damaged the lens in one case, so that the danger would appear to be more apparent than real, since the mechanical trephine is far more cumbersome than the trephine of Tudor Thomas. Accordingly, in my later cases the bed has been cut straight through the cornea and the graft similarly prepared.

The objections to the shelving method are: (1) that an irregular rough wound is created, since it is impossible to shelve both graft and bed accurately; (2) that the posterior surface of the cornea available for vision is diminished and may possibly be entirely occluded later by prolifera-

[1] *British Medical Journal*, January 18th, 1936, p. 106.

tion of loose shreds of Descemet's membrane, which it is not always possible to remove at operation.

With care there is no real risk of the graft slipping into the anterior chamber, and the section is applied much more accurately than it can be by the use of scissors ; in any case the pupil contracts when the aqueous humour is evacuated, and the lens in this measure is protected. The absorption of aqueous by the cut edges of the graft soon fixes this in position and produces a watertight joint.—I am, etc.,

London, W.1, Jan. 29th. B. W. RYCROFT.

Tonsillectomy by High-frequency Currents

SIR,—I am surprised to find Dr. Eidinow's results in the removal of tonsils by electrical currents of high frequency so much better than those obtained by many surgeons who tried this method before him (*Journal*, January 25th, p. 152). Some years ago, carried away by a new transatlantic work on the subject, I did a series of diathermic dissections of tonsils. I found this method slower, more difficult, and less certain than the ordinary blunt dissection, and also it ruled out those safe anaesthetics—gas and ether. However, as I still felt that post-operative pain or the end-result might be better, I removed one tonsil by diathermic dissection and the other by blunt dissection in a dozen cases. Careful inquiry from the patients and re-examination over many months revealed no advantage. I used needle electrodes and modern diathermy machines, both spark-gap and valve type.

In the blunt dissection full use is made of the plane of cleavage found in the peritonsillar tissue ; once the surgeon has entered this layer it becomes comparatively difficult to stray from it. Diathermy, on the other hand, will cut through tonsil or pharyngeal wall with equal facility. Further, haemorrhage during a blunt dissection is rarely severe. If it be venous, firm pressure for half a minute will check it ; if it be arterial, a catgut ligature is easily applied. I have yet to meet the case which requires suturing of the pillars, although I have performed this operation over 4,000 times. Secondary haemorrhage is more common after a diathermic removal, because there is a slough which has to separate.

Progressive electro-surgical diathermy strikes me as being even more irrational than the *morcellement*, which used to be fashionable across the Channel. It is impossible to regulate the depth of coagulation so that it reaches exactly the tonsillar capsule. When the slough separates, part of the pharyngeal wall may come away with it, exposing a main tonsillar artery, for it is well known these arteries divide in the pharyngeal wall ; there is also the danger of infection of the deeper layers of the neck. In other cases coagulation will not be deep enough, and a scarred tonsillar remnant can be more troublesome to the patient, and to the surgeon, than an intact tonsil. I carried such a remnant in my own throat, and I know!

Electro-surgery has advantages in dealing with malignancies and tuberculosis in the tonsillar region ; it may be useful in dealing with the dense adhesion which follows a quinsy if it be met during an ordinary dissection. In tonsillectomy performed for its usual indications it has no place.—I am, etc.,

London, W.1, Jan. 27th. G. DE RYNCK.

Use of Basal Anaesthetics

SIR,—I have read with great interest in the *Journal* of February 1st (p. 236) Dr. Ronald Jarman's letter on the use of nembutal suppositories for basal anaesthesia in children. The following is a summary of my own original investigations during the past six months.

This investigation was made with the object of determining the advantage, if any, of administering nembutal rectally instead of by the usual oral and intravenous routes. The cases in this series were chosen arbitrarily, and included all the types commonly seen in a mental hospital. In each case the individual response to nembutal was tested by a preliminary dose of 2 grains at bedtime. Most patients responded by sleeping quietly for an average period of six hours. In certain manic states this dose was quite ineffective, and had to be increased to 6 grains, which was found to be safe and usually effective. Special use was made of nembutal suppositories in prolonging the narcosis initiated by intravenous nembutal. This method was found to be most valuable in the treatment of acute anxiety states. Good results were obtained also in numerous cases of agitated melancholia and in the restless states of senile confusion. This method is used also as an adjunct to " narco-analysis."

These observations confirmed the finding of Jarman that " in no case where the drug has been administered per rectum has there been complete failure, such as has been known to happen when the oral route is employed." In conclusion, it is of interest to record the value of a hypnotic which can be administered with ease to the resistive patient who " will not swallow " and in whom hypodermic injections are contraindicated.—I am, etc.,

Dorchester, Feb. 1st. J. STEPHEN HORSLEY,
Senior Assistant Medical Officer,
Dorset Mental Hospital.

Ocular Haemorrhage after Basal Anaesthesia

SIR,—The following note on evipan, in view of its wide application, may be of interest.

A married woman, aged 45, was referred to me by Dr. Over of Kingston, complaining of sciatica. The general examination of the patient revealed no abnormality: heart and lungs, normal ; blood pressure 160/90. On January 9th 2.5 c.cm. of sodium evipan were given intravenously. The anaesthesia proceeded without any undue event, lasted for ten minutes, and was followed by a deep sleep of several hours. No fibrillary twitchings were observed during the anaesthesia. Eighty c.cm. 1 per cent. novocain were then injected into the epidural space, followed by manipulation.

On January 10th the sciatic pain was completely relieved, but the patient complained of interference of vision in the left eye, especially in the centre of the visual field, and also of misty vision in the right eye. Examination of the fundi (Mr. Yow) revealed bilateral subhyaloid haemorrhages. From this time onwards there was slow, progressive improvement in the visual acuity of both eyes, but at the time of discharge from the hospital, on January 18th, there was still considerable interference with the vision of the left eye.

It may be a coincidence that the haemorrhage followed the evipan injection, and I have not been able to find a similar occurrence. I think it is, however, worthy of record. From the point of view of the sciatica the patient was completely cured.—I am, etc.,

London, W.1, Jan. 27th. GERALD SLOT.

Cancer in the Far East

SIR,—Dr. D. S. Bryan-Brown (*Journal*, January 25th, p. 185) takes exception to the statement (January 18th, p. 103) that cancer of the penis is uncommon in Chinese men. My experience agrees with that of Dr. Bryan-Brown. Having spent over six years in North and Mid-China I can say that carcinoma of the penis is common in those parts of the republic. In hospital practice one is sure to see several cases of the disease in the course of a year.

Regarding the statement that "cancer in its various forms is much rarer in the Far East than in America or in Europe" (quoting from the same note), my feeling is that this can hardly be said of China proper, or of the northern half at any rate. I can distinctly recall cases of most, if not all, of the common forms of malignant disease. Those most frequently met are carcinoma of the oesophagus, carcinoma of the penis, epithelioma of the lip (no betel nut chewed in our part), and myosarcoma. Malignant ocular tumours are not rare. I can recall one which had involved the bones of the orbit. It recurred after complete exenteration of the orbit. Cases of carcinoma of the breast are usually in an advanced stage when seen. Benign tumours of long standing and large size are often seen, and not infrequently malignant change has set in. The following is a list of cases reported in the *Chinese Medical Journal* during the last two years. Obviously these are reported because of their rarity, the common forms of malignant disease not being reported individually. They may serve as an index of the occurrence of cancer in China. Sarcoma of the male breast reported from Fukien, South China; sarcoma of the prostate in a man aged 25 years, reported from Hankow, Mid-China; carcinoma of the cervix in pregnancy, collected report of five cases in Peiping, North China, from 1930 to 1933; epibulbar sarcoma, one from West and one from North China. China is a vast country, and the note we are criticizing appears to deal particularly with the Malay States and the Philippine Islands. I have more than once heard it stated, and sometimes by medical men, that cancer does not occur among the Chinese. The fact that they have not seen it, or that their informant has not seen it, does not mean that it is not there. Even those of us who have seen it cannot give an adequate estimate of its prevalence, for we have no means of ascertaining what proportion of the cases fail to present themselves for examination—rather a large proportion, I imagine.

I will borrow an example from the case of appendicitis. It used to be said by many that appendicitis did not exist among the Chinese. An explanation offered by some was that the Chinese live almost entirely upon a vegetarian diet, thus condemning the mixed diet of Western lands. In the last few years appendicitis has appeared among the Chinese, and is increasing year by year. For the year 1933 seventeen hospitals scattered all over China report 522 cases of appendicitis from a total of 208,045 cases of every kind (*Chinese Medical Journal*, 1934, xlviii, 769). We cannot explain the appearance and increase of the condition by a change in Chinese diet: they have not the means to change. In my opinion the disease has been there always, but hidden by a misconception of its basal pathology. The Chinese consider it a "medical" complaint and seek relief by taking native remedies. Now there exist in China, scattered throughout the towns and villages, an ever-increasing number of men and women who have been nurses or students in mission and other Western hospitals. These recognize appendicitis as a "surgical" complaint, and adyise that the sufferer should be taken to the hospital for surgical treatment. The disease will continue to increase in statistical returns, for successfully treated cases advertise the surgical nature of the complaint.

Cancer is not such a rapidly fatal condition as wrongly treated appendicitis, and for that reason the sufferers have often appealed to the "foreign doctor" for help as a last resource and in an incurable condition. Even so, how much malignant disease remains hidden from Western eyes it is impossible to say.—I am, etc.,

Wolverhampton, Feb. 1st. I. LLOYD JOHNSTONE.

Caesarean Section

SIR,—Mr. Bright Banister's article on Caesarean section in the *British Medical Journal* of December 14th, 1935, gives cause for thought, and owing to his great experience his opinion on any obstetrical subject will be received with the greatest respect. A general practitioner, however, may perhaps criticize his treatment of statistics.

In considering 3,846 cases of Caesarean section with a maternal mortality of 6.6 per cent., he states: "This mortality must be compared with the gross maternal mortality following childbirth . . . about 0.45 per cent." Surely the mortality in the two instances must *not* be compared. The Caesarean cases were presumably operated on because of some difficulty—great or small—which made delivery *per vias naturales* abnormally dangerous. The gross maternal mortality is for *all* cases, the vast majority of which are perfectly normal and require no interference, and in which the mortality should be negligible. No comparison of the respective mortalities can be made.

What one requires to know is this: in the 3,846 Caesarean cases with a mortality of 6.6 per cent., what would the maternal mortality have been if delivery had been made *per vias naturales*? This can be assessed only by taking a large series of *similar* cases treated otherwise than by Caesarean section. Mr. Banister states that the mortality in 1,763 Caesarean operations "performed in famous maternity hospitals by experienced and distinguished operators amounts to 5.8 per cent." This figure is surely much too high, and one wonders what proportion of these cases had been "messed about" before entering the hospital.

Caesarean section done after "failed forceps" and "trial labour" resulting in obstruction will always carry a considerable mortality, but, planned in advance and done deliberately under favourable conditions, the mortality should be very small. In the *British Medical Journal* of December 21st, 1935, Schilling records 230 Caesarean operations, with a mortality of *nil*. In my own extremely limited personal experience I have found the operation to be one of the easiest in abdominal surgery—very much easier and safer than the average appendicectomy done after the first forty-eight hours of the illness.—I am, etc.,

January 17th. M.D.CAMB.

Fire-walking

SIR,—My old and valued friend Sir Leonard Hill, in his letter dated January 19th (*Journal*, p. 185), offers a calming, and cooling, view of the subject of fire-walking. Sir Leonard informs us that the observed phenomena of painlessness and absence of blistering or other tissue-reactions in certain individuals when walking over red-hot stones or red-hot embers are neither unusual nor abnormal. Sir Leonard himself, he tells us, can press the ball of his thumb, hardened by gardening, for a second or longer against a thick glowing stick of charcoal without pain; moreover, he can similarly press his heel on the burning surface for more than five seconds before feeling any sensation of pain. Incidentally, from personal observation of Sir Leonard, I have been able to verify that he does not habitually walk barefooted in the streets of London, so that we can exclude the hypothesis of insensitiveness due to daily training or habituation. The logical conclusion from his letter seems to be that the phenomena of fire-walking are entirely physiological, and that the absence of tissue-reactions and of pain on pressure by his thumb and heel on a stick of red-hot charcoal does not differ,

save in degree, from similar analgesia and absence of erythema or blistering, as observed in fire-walkers, who step or dance upon burning embers or red-hot stones. The weight of the walker's body during walking, however, increases the intensity of contact with the skin of the sole, making it more than a mere momentary touch. This weight must be borne somewhere, and in this instance there is no other supporting surface save that of the subjacent hot stones or embers. Sir Leonard himself points this out, and emphasizes the fact that during the Kuda Bux experiments the two English amateur fire-walkers, who courageously acted as controls and unfortunately burned the soles of their feet in so doing, "were heavy men, hesitant in their walk," whereas "Kuda Bux was of light weight and walked confidently."

According to Sir Leonard, painless dancing through a blazing fire while the dancer is wet with sweat, or the practice of lifting up burning embers and placing them into the axillae, wet with sweat, or into the wet mouth, are to be regarded as natural and physiological phenomena. I hope, therefore, that at some convenient early date Sir Leonard will see his way personally to demonstrate all these phenomena to a few of us clinicians. He will, of course, select his own method for inducing the necessary degree of sweating of the soles and axillae, whether by dancing on the hot embers, or perhaps, less drastically, by the hypodermic administration of pilocarpine, which latter will have the additional advantage of inducing salivation. He can then proceed to the most convincing part of his demonstration by placing red-hot embers in his axillae and mouth, since he feels confident of being able to do so without causing pain or tissue necrosis. But I beseech him not to submit himself to the further physiological ordeal of "plunging his arm, protected by its natural moisture, in and out of molten lead." My regard and admiration for Sir Leonard are so sincere (the word warm would be inadequate in such circumstances) that I hope he will not consider me presumptuous if I bring with me to this demonstration some ordinary remedies for the alleviation of pain and for the treatment of burns, in case by any mischance they may be required.

As an additional attraction to this séance Dr. Anthony G. Palin might be induced, in confirmation of his letter of January 14th, to give us a demonstration of walking barefooted on red-hot stones arranged according to his own plan

> so that the apposition of foot to stone may approximate to "point-contact" on the theory that the heat from the smooth hot stones will be rapidly conducted to and distributed among the internal structures of the foot without greatly heating the skin, where the area available for heat-conduction approaches to point-contact, so that the total quantity of heat transmitted is quite small, being specially small when the contact is only for a few seconds.

But I seem to have a recollection that there exists an instrument for point-contact, known as a thermocautery, which fulfils these requirements, but produces results quite different from those described by Dr. Palin.

Last week, through the kindness of Admiral Mark Kerr, I received an excerpt from the *Balkan Herald*, January, 1936, of an article entitled "Women who Dance on Fire," written by Mr. Wilhelm A. Baumfeld, a member of the staff of *La Bulgarie*, describing an astonishing village custom in Bulgaria. A brief quotation must suffice:

> "They were old women with wrinkled faces. They danced before the hut, eyes half closed, to the music of the pipes. Their muscles grew taut, their whole bodies trembled, and from time to time they uttered shrill cries. Then they ceased to dance. Exhausted, they waited a few moments, still standing, and then ran into the forest to some secret spring, where they were sprinkled with holy water. We went back to the village. In the meantime a brazier had been brought out and placed before the church doors. It was about a metre in diameter, with great tree-trunks, piled on one another, burning. The smoke mounted upwards and long tongues of flame shot up. For some hours the wood burned, until the brazier was a mass of clear burning embers. Then, while the onlookers formed a circle around it, the holy images were brought out once more. The music recommenced, exciting and moving. It was now a frantic dance. The dance of the nestinarki. The radiant heat of the brazier could be felt. The frantic beating of the drums and the wail of the bagpipes tore at our nerves. Suddenly the crowd divided; the nestinarki were coming. Holding one another firmly by the hand, they seemed to be consumed by some internal pain. With rapid steps one of the women began to dance around the brazier. One more step and she was in. She danced, barefoot, on the reddened embers, following the music of the bagpipes. She crossed the brazier, turned and recrossed, without a check. Three times she entered the brazier, each time dancing there for two full minutes. But two minutes are 120 seconds, and her feet were bare! We looked on astonished. A miracle of the twentieth century? We looked at the woman's feet. They showed not the slightest trace of burning. She felt no pain. 'St. Constantine was in me,' she said, 'I had to dance.'"

I submit that the foregoing observations further corroborate my view that the phenomena of fire-walking are associated with powerful auto-suggestion in an emotional atmosphere of religious ecstasy. The mechanism of their production remains imperfectly understood, and they offer a field for further clinical investigation.—I am, etc.,

London, S.W.1, Jan. 28th. J. PURVES-STEWART.

SIR,—Differences of opinion regarding the immunity of fire-walkers from injury will always exist so long as the investigations are confined to visual observations. If, however, the temperature attained by the feet of the performer were measured the question could then be definitely settled, and this could be done in the following way:

A thermocouple is made by taking a thin disk of copper about 1 cm. in diameter and soldering to it a long thin wire of copper and a similar wire of eureka. The disk is then placed on the heel or any part of the foot which comes into contact with the hot surface, and the wires fastened securely to the leg so that the disk is held tightly against the skin. The free ends of the wire are taken to a sensitive galvanometer near which a cold junction is formed. Before use the scale of the galvanometer may be calibrated to read temperatures by subjecting the thermocouple to different temperatures measured by an accurate thermometer and noting the corresponding deflections.

If properly arranged this device would not impede the movements of the fire-walker, and the maximum temperature attained by the skin of his foot could be accurately noted. If any observer should have an opportunity of testing fire-walkers by this method definite data would be procured which would remove the question from the realm of conjecture.

In the case of Kuda Bux I was unable, for several reasons, to apply this test directly, but, as shown in my communication to *Nature* for September 28th, 1935, an indirect test with a thermocouple showed conclusively that his feet did not attain a temperature sufficiently high to cause blistering. So far as could be seen, his feet had not been previously prepared, nor was the skin hardened as in one accustomed to walking with bare feet. He traversed the fire very quickly, each foot resting twice on the surface during the passage, and his success was due to this speed and the skilful way in which he avoided sinking deeply into the fire, with the result that the temperature of the skin of his feet did not reach the danger point. As a fire-walking feat it was much inferior to those of the hard-skinned performers of Fiji, Ceylon, and other places, but was a clever and courageous display.

As to Kuda Bux being able to see with the end of his nose, I asked him if he could perform the feat if I held down his eyelids with my fingers instead of covering them with dough. He said he could not. On asking why, he replied: "Because then there would be two person-

alities." Readers may draw their own conclusions from this cryptic utterance.—I am, etc.,

London, S.E.18, Jan. 29th. CHAS. R. DARLING.

⁂ We have received several letters on Kuda Bux's claim "to be able to see with the end of his nose," but that is a "side-issue" which cannot be discussed here. —ED., *B.M.J.*

Birth Control and War

SIR,—We are reminded by your correspondent Dr. G. H. Alabaster (p. 135) that the national birth rate has now declined to the lowest recorded level—namely, 14.4 per 1,000. I would suggest that the phenomenon is but one aspect of a general process of devitalization now affecting Western civilization. A full-fronted attack is in fact being made against life. Life is checked at its springs by birth control; escaping this, it is thwarted in its self-expression by big business and bureaucracy; and now, finally, we see its almost wholesale destruction threatened by bombing aeroplanes and poison gas. If it be true that these phenomena are all linked together and are symptoms of one disease, surely the fact should obtain general recognition, so that the present methods of palliation may be replaced by some more radical treatment. Without exaggeration it would appear that civilization is at present in the act of committing suicide. My own belief is that the only hope of saving it now lies in a return to individual self-development, and thus a determined reversal of the present dominant process of standardization and crowd formation. But at the same time I do not think that such a reversal can take place in the great metropolitan cities or their satellite towns; in them the crowd is necessarily dominant, and they have little room now left for children. Regeneration can only begin in the country, and therefore it will be the duty of our profession—whose primary function surely is the conservation of life (vide discussion on euthanasia)—to advocate a policy of back to the land, with rapid depletion of cities. Certainly if the present drift continues war is going to come almost immediately, and there is no doubt that the super-bomb has been specially designed for the destruction of the super-city. Hence these big centres of population will in any case be emptied automatically and violently, if evacuation is not now carried out voluntarily and in an orderly way. Dr. Alabaster well suggests that "national and international embarrassments will fall to the lot of a shrunken people which has lost faith in itself."—I am, etc.,

North Queensferry, Fife, Jan. 25th. A. J. BROCK.

London Hospital Catgut

SIR,—A report of an inquest at Cambridge appeared recently in the lay press in which it was stated that death was due to tetanus, and the house-surgeon in giving evidence said that he agreed that the infection was from the catgut. There was also in the report the direct implication that the catgut had been supplied from the London Hospital. This is incorrect. I have been in communication with the secretary of the hospital at which the death occurred, and he writes: "I am glad to be able to inform you that the suspect catgut was not London Hospital catgut."

I might add that since the publication by the Medical Research Council in 1929 of the results of the long investigations carried out at this hospital by Professor Bulloch, in collaboration with Dr. Lampitt and Mr. Bushill, into the "Preparation of Catgut for Surgical Use," the demands for London Hospital catgut have increased very considerably, and we now supply catgut all over the world. A statement such as appeared in the lay press, if uncorrected, cannot but have very far-reaching and damaging results, and I shall be very grateful if you will give publicity to this denial.—I am, etc.,

ARTHUR G. ELLIOTT,
London Hospital, Whitechapel, E.1. House Governor.

The Poisons Rules

SIR,—I do not wish to occupy your space in discussion with Sir E. Graham-Little further than is necessary to allay any apprehension which may have been caused by his reiterated assertion that the effect of Rule 29 of the Poisons Rules is "to debar the registered medical practitioner (unless he is otherwise qualified) from dispensing any of the poisonous drugs scheduled as such."

The words "manufacture of pharmaceutical preparations" do not originate with the framers of the rule, as Sir E. Graham-Little appears to suggest, but are the actual words employed by Section 23 (1) (i) of the Act itself, and, as I pointed out in my previous letter, are in clear contrast to the words in Section 23 (1) (f), which gives a separate power to make rules in respect of "compounding and dispensing." It seems hardly likely that those who were watching (whether inside or outside Parliament) the interests of the medical profession would have acquiesced in the passage of Section 23 (1) (i) if there had been any reason to suppose that it affected in any way the right of the medical practitioner to dispense his own medicines; and I repeat that this right remains entirely unaffected.—I am, etc.,

Home Office, Feb. 4th. GEOFFREY LLOYD.

SIR,—Sir Ernest Graham-Little insists that Rule 29 prohibits medical practitioners from dispensing medicines containing poisons for their own patients. One has only to apply the word used in the rule—"manufacture"—to the dispensing of medicines, and to speak of the "manufacture of a bottle of medicine," to appreciate the incongruity of that reading of the rule. In Section 23 of the Act "compound," "dispense," and "manufacture" are all used, each with its own meaning. The compounding and dispensing of pharmaceutical preparations containing poisons are in this legislation the subject of provisions entirely separate from those applying to manufacture.—I am, etc.,

HUGH N. LINSTEAD,
17, Bloomsbury Square, W.C.1, Feb. 4th. Secretary, Pharmaceutical Society of Great Britain.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel Alexander Silcock, Bengal Medical Service (ret.), died at Belfast on January 17th, aged 79. He was born on September 22nd, 1856, of an old-established County Down family, and was educated at the Royal School, Dungannon, and at Trinity College, Dublin, where he graduated B.A., M.B., and B.Ch. in 1880, gaining a gold medal for Greek, and M.D. in 1892. He also studied for a time at University College, London, and took the D.P.H. at Cambridge in 1893. Entering the I.M.S. as surgeon on April 2nd, 1881, he became lieutenant-colonel after twenty years' service, and retired, with an extra compensation pension, on March 25th, 1909. After retirement he settled in County Down, and during the war of 1914-18 served as a member of the Pensions Board in Northern Ireland. After the usual two years of military duty he entered civil employ in the Central Provinces, and served as civil surgeon at Bilaspur, Nagpur, Raipur, and Jubbulpore successively. During his service he had the misfortune to be bitten by a rabid jackal, for which he successfully received treatment at the Pasteur Institute at Kasauli; and he also contracted plague while serving in an epidemic of that disease. In 1890 he married Kathleen, daughter of Lieut.-Colonel H. G. Saunders of the Bengal Staff Corps; she predeceased him three years ago. Three young sons died in India, a fourth son is now in dermatological practice in Leicester, and a daughter, resident in Ireland, also survives him. He joined the British Medical Association in 1888.

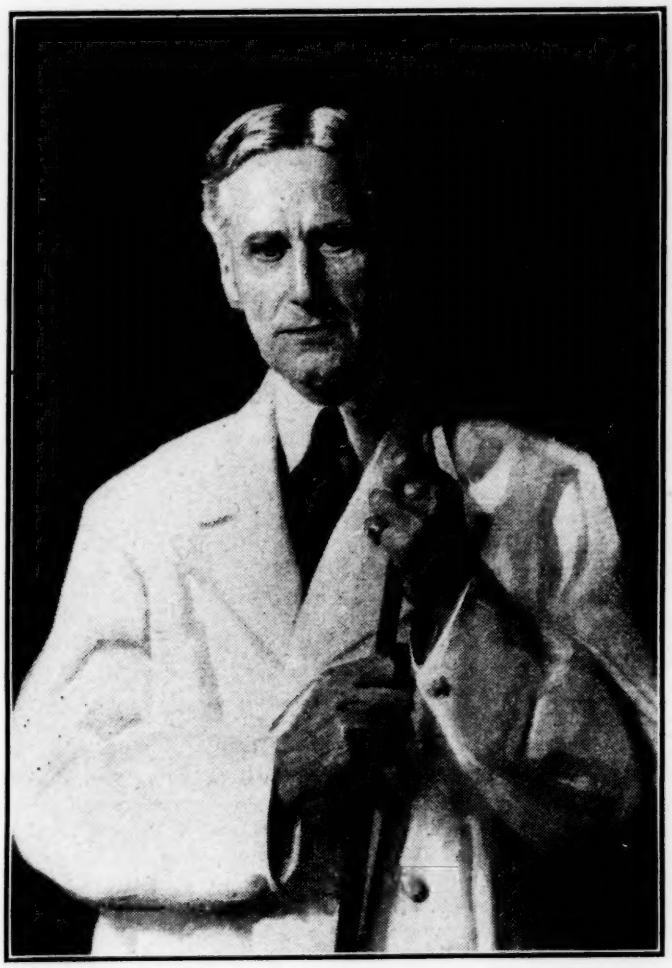
Obituary

WILLIAM BLAIR-BELL, M.D., F.R.C.S.

Emeritus Professor of Obstetrics and Gynaecology, University of Liverpool

By the death of William Blair-Bell the medical profession has lost a very distinguished and remarkable man and an inspiring leader who had more influence on British gynaecology than anyone else of his generation. He died in the train, near Shrewsbury, when returning home from London in the afternoon of January 25th. He was 64 years of age.

He is mourned by a wide circle of acquaintances and by a most devoted band of friends and adherents, both professional and non-professional, not only within the British Isles, but outside them also, especially in the United States of America.



William Blair-Bell was born at Wallasey in 1871, the son of the late Dr. William Bell, J.P., and of Helen, daughter of the late General Butcher. He was educated at Rossall School, where he was afterwards appointed a member of the council, and at King's College and King's College Hospital, London. At King's he was an energetic and successful student in both work and play, but there is no record of the exceptional powers he was to develop later on. He won the Warneford Scholarship, and the Tanner prize for obstetrics and gynaecology, and was captain of the cricket eleven. He qualified with the Conjoint Diplomas in 1896, took the M.B.Lond. the next year, and obtained the degrees of M.D. in 1902 and B.S. in 1904 He was made an associate of King's College in 1897 and was elected a Fellow in 1928.

For a short period he was in general practice in Birkenhead, but soon decided to specialize in obstetrics and gynaecology. He published some papers in physiology and clinical gynaecology, which attracted favourable attention, and in 1905 was appointed gynaecological surgeon with charge of out-patients to the Liverpool Royal Infirmary and gynaecologist to the Wallasey Cottage Hospital. From now onwards Blair-Bell laboured with a zest and determination which never abated, and produced work of a quality that quickly put him in the front rank of scientific gynaecologists and won for him an international reputation. From the very outset he planned his work on the laboratory-ward system, the combination of research worker and clinician and the correlation of laboratory and clinical observations. For this in Liverpool he was fortunately placed; as the university had well-equipped laboratories of biochemistry and pathology, each directed by a progressive and sympathetic chief, to give help and encouragement. Very little was known then of the physiology of sex and reproduction, and of the functions of the ductless glands. It was to this branch of physiology, the very foundation of scientific gynaecology, that Blair-Bell directed his attention, and the results of his work appeared in a series of papers in the *Transactions of the Royal Society of Medicine*, the *Journal of Obstetrics and Gynaecology of the British Empire*, the *Lancet*, the *British Medical Journal*, and other scientific publications. His researches during this period were brought together in his Arris and Gale Lectures to the Royal College of Surgeons in 1913, entitled "The Genital Functions of the Ductless Glands in the Female," in which he made the attempt, probably the first, to demonstrate that the reproductive functions are directed and controlled by all the organs of internal secretion acting in conjunction rather than by the gonads alone, as formerly thought. In the same year he opened the discussion on this theme before the Royal Society of Medicine with an address entitled "The Relation of the Internal Secretions to the Female Characteristics and Functions in Health and Disease,' and wrote the article on "The Disorders of Function' for the *New System of Gynaecology*. In 1916 he published *The Sex Complex*, a book in which he welded together and amplified his investigations and publications. In 1916 he was appointed Hunterian Professor at the Royal College of Surgeons. In 1919 appeared *The Pituitary*, a large and comprehensive monograph embodying his own work and that of others. The book showed the width of his reading as well as his up-to-date knowledge of scientific medicine. The Council of the Royal College of Surgeons awarded him the John Hunter medal and the triennial prize for his original work on the pituitary body, and the Astley Cooper prize for original work on the same subject. It is interesting to note that in a paper in the *British Medical Journal* in 1909 on "The Pituitary Body and the Therapeutic Value of Infundibular Extract in Shock, Uterine Atony, and Intestinal Paresis" he was the first to draw attention to the use of pituitrin in obstetrics, reporting that he had observed excellent results in the treatment of three cases of post-partum haemorrhage.

Blair-Bell's real job in life was, however, not scientific research, but clinical obstetrics and gynaecology. His laboratory work was a means to an end, the necessary basis of sound clinical work. Intensive laboratory work, in what may be called his first period, by no means absorbed all his attention. Hospital work and private practice, teaching, clinical investigation, and operating

were the daily round, and the numerous papers he published on clinical subjects showed that all sides of his work received earnest thought and attention. His clinical work was indeed rated high, and he was greatly sought as a contributor to Systems: he wrote articles for the *New System of Gynaecology*, Cheyne and Burghard's *System of Operative Surgery*, the *System of Treatment*, and the *Practitioner's Encyclopaedia*.

In 1910 appeared the first edition of his textbook *The Principles of Gynaecology*, in which he attempted to present to the general practitioner and student a complete and modern survey of the foundations on which gynaecology is established. The book was beautifully produced and illustrated, and contained the undoubted imprint of the author's personality. A new feature was the aetiological instead of the time-honoured anatomical arrangement of the subject-matter. The book was not at first regarded with favour by teachers and medical students, being considered too scientific, a criticism which in his preface to the fourth edition (1934) he characteristically met by the counter-criticism "I have come to the conclusion that to speak of a textbook as being 'too scientific,' as this has been described, is a reflection on the student, and is due to an inferiority complex on the part of the teacher. In the past the mistake of underrating the intelligence of the student has kept many from coming into their own and has been productive of poor teaching." Nowadays, the standards of teaching and examinations having risen, the book is widely read.

In 1913 he became senior surgeon to the Liverpool Royal Infirmary. In 1921, on the retirement of Professor Henry Briggs, he was elected to the chair of obstetrics and gynaecology in Liverpool University, a position which he held until 1931, when he retired with the title of Emeritus Professor and was succeeded by the lamented Leith Murray.

He threw himself into his professorial duties and responsibilities with his usual ardour, and was rewarded by seeing his department recognized as the leading British school of teaching and research. Honours and recognition from universities and scientific bodies, and the demands of public work, came thick upon him. He was at one time or another president of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, president of the North of England Gynaecological Society, president of the Liverpool Medical Institution, chairman of the Medical Faculty of the University of Liverpool, chairman of the Executive Committee of British Congresses of Obstetrics and Gynaecology, and was president of the Liverpool Royal Infirmary at the time of his death. In 1929 he became the first president of the newly created British College of Obstetricians and Gynaecologists. He was made an Honorary Fellow of the Edinburgh Obstetrical Society, the American Gynaecological Society, the Chicago Gynecological Society, the American Gynecological Club, the American Medical Association, and a foreign member of the Société Belge de Gynécologie et d'Obstétrique, and several medical societies in Great Britain. He was elected a Fellow of the Royal College of Surgeons of England and a Fellow of the American College of Surgeons, and the Universities of Liverpool and Glasgow gave him the LL.D. degree. He was a Commander of the Royal Order of the Star of Rumania.

The Gynaecological Visiting Society

In 1911 Blair-Bell founded the Gynaecological Visiting Society of Great Britain. He was always affectionately known by its members as the "Father of the Society"; for it was his own child and its meetings were one of the greatest joys of his life. It was small and young, the number of its members being originally limited to twenty, with 55 as the age of retirement from the active list. Two meetings a year were held, one of which was often at a Continental centre, thus establishing the friendliest relations with the heads of foreign clinics, from whom much was learned. The objects of the society were "the encouragement and demonstration of scientific research and the study of methods employed at gynaecological clinics," but its implications went far beyond that, as indeed must have been envisaged by its far-seeing founder. It was destined to exert a powerful influence not only on the practice but also on the organization of obstetrics and gynaecology in Great Britain. For the first time gynaecologists all over the country, meeting at their respective centres, in an atmosphere of informality, got to know one another; views were exchanged, friendships made, and a corporate spirit was acquired. In fact, although this was not foreseen at the time, because the College was not even thought of, the society was in truth the mother of the College of Obstetricians and Gynaecologists. The last meeting at which he was entitled to participate as an active member was, appropriately enough, held in Liverpool, just as the original one had been, in his own university department and hospital. The meeting was attended by every living member, past and present, and no one can forget the enthusiasm and affection with which he was greeted when he rose to speak at the farewell banquet given by him. On this occasion the society presented him with his portrait-drawing by Sir William Rothenstein and a silver inkstand specially designed and made for him.

The British College of Obstetricians and Gynaecologists

The most important memorial to Blair-Bell is undoubtedly the College. He dominated the small group of men which met together to consider the proposal (which originated from Professor Fletcher Shaw) that a College should be formed, and which later drew up its constitution. When the College was incorporated he was elected its first President. Conscious that he had found a cause to which he could consecrate all his energies, he subordinated all other interests, personal and professional, and drew dangerously on the reserves of his physical powers, to the attainment of the great end of his endeavour. He saw a vision which to most of his associates seemed but fantasy, and by the sheer force of character he made it real. But for his vision, vigour, and courage it is doubtful if the College could have survived its birth; and certain it is that if it had done so it would have been a mere shadow of its present self.

His vision was that of a great college embracing this branch of our profession in the whole of the British Empire, and taking its place side by side with the two older Colleges. His energy and intrepidity, which only increased with opposition, drove all before him. When others were prepared to compromise he would accept nothing but the whole, and there is no doubt that his determination at the most crucial time conserved the rights of the College to develop upon its own lines unhampered by restrictive legislation.

Impressed with the importance of ceremonial and with the vitality it imparts, Blair-Bell insisted upon a ritual which many thought might be ridiculous. Gowns, coat of arms, ceremonial admission of Fellows and Members, a form of oath to be taken by Members on admission—all now accepted as part of the College and as binding it into a corporate body—these were first proposed by him when President, designed by him, and carried against considerable opposition. The line between the sublime and the ridiculous is sometimes very fine, and there is no doubt that the first formal admission of Fellows and Members, accompanied as it was by the ceremonial forms he had devised, required great courage as well as administrative ability, and was carried through by him with consummate

skill and dignity. In the course of time it became apparent that the College must have its home in London. With Blair-Bell to decide was to act. He searched London for a suitable house, and having found it at 58, Queen Anne Street, and there being no money available for its purchase, he supplied the capital and collected from some of the Fellows the necessary sum for its furnishing and decoration. His last act as president was to preside at the opening of this home by H.R.H. the Duchess of York, and there is no doubt that this was one of the happiest and proudest days in his life. It was the culmination of many years of work, and the ceremony devised by himself went without a hitch. By a happy chance the two Honorary Fellows admitted by him that afternoon were old personal friends, Sir Robert Jones of Liverpool and W. P. Graves of Boston. The furniture bought for the council room and library was chosen and, in a large measure, designed by himself. He was determined that the College from the first should play a prominent part in moulding obstetrical thought, and it was a disappointment when any of his schemes were not accepted. Two which he proposed, and the abandonment of which caused him grievous disappointment, have since been adopted: a diploma for general practitioners and a memorandum for a national maternity service.

After his term of office came to an end he continued to take the same keen interest in the College and its welfare, and there can have been few days when it was not in his thoughts.

Of the impression made by Blair-Bell's personality it would be impossible to speak with indifference. He was capable of arousing ardent enthusiasm and equally strong antagonism. He was a genius, and you cannot have genius without its attributes. He was intolerant, and the thought of tolerance was repugnant to him. In controversy his impulsive nature sometimes got the better of his good judgement, and though hypersensitive himself to criticism he was a destructive critic of others, and often wounded them more deeply than he knew. Even with his best friends he could be stern, at times almost ruthless; and yet there was another side, an almost boyish charm and love of mischief, and a disarming tenderness to children and animals, who instinctively loved him. He was an arresting-looking man in any company, with the alertness and vigour of his spare form and distinguished head, and no portrait quite does justice to that keen gaze, which seemed always to be scanning the horizon for some object by and by to be attained. Gifted with remarkable insight, boundless energy, intrepidity and absolute sincerity, he was endowed also with the power of complete concentration of purpose and sustained application to the problem in hand. In mid-career he had a severe streptococcal infection, acquired during an operation, which nearly cost him his life and lost him a finger. This permanently damaged his health and culminated in the severe cardiac illness from which he suffered a few years ago. His refusal to allow any considerations of self to limit his activities was typical, knowing as he did that physical and mental strain would inevitably hasten his end. On the day of his death he had shown all his usual vitality at a meeting he had travelled to London to attend.

"He was a man, take him for all in all,
I shall not look upon his like again."

Let us never forget our debt to him.

EARDLEY HOLLAND.

Blair-Bell's Work on Cancer

Blair-Bell's investigations of the problems of malignant disease are almost too well known to need comment. It was in 1909 that he began his work on this subject. The hypothesis that he formulated at that time was that the chorionic epithelium, and particularly the syncytium, was normally a malignant tissue, and his direct inference from this was that any substance which could check the development of such epithelium might be equally applicable to the treatment of malignant disease. His initial investigations were made with placental and embryonic extracts, and it was only when these failed that he tried the effect of lead, assuming that since lead could be used as an abortifacient, being particularly toxic to young or embryonic life, it might possibly restrain the growth of tumour cells. Thus in 1920 he proceeded to treat an inoperable spheroidal-celled medullary carcinoma of the breast by a partly colloidal lead iodide injected intravenously. In this, his first case, distinct improvement was noted. Within a month the growth itself had practically disappeared and the enlarged glands had subsided. Encouraging results in many other cases were recorded, and in 1923 a Cancer Research Committee was founded by the University of Liverpool, in order to subsidize and facilitate the researches upon Blair-Bell's theories. Blair-Bell himself had a remarkably wide acquaintance with new work in the medical sciences; nevertheless he insisted always that progress towards any objective, and particularly in the case of cancer research, could only be achieved by the closest co-operation between clinicians, pathologists, pharmacologists, and physicists. Publications by Blair-Bell and his co-workers in these and other spheres appeared from 1922 onwards, and by 1930 more than sixty papers had been published recording investigations on many aspects of the cancer problem, and especially with regard to the influence of lead on normal and malignant tissues. These researches were correlated by Blair-Bell in *Some Medical Aspects of the Cancer Problem* (1930), which gives evidence perhaps more than any other of his publications of that considered caution which was a feature of all his scientific work. He endeavoured all along to restrict the use of lead compounds in malignant disease till their toxicity could be controlled and their specific value more definitely determined.

After his retirement from active practice in 1931 Professor Blair-Bell maintained an intimate connexion with the research work which still continues actively in Liverpool, both from the scientific and the clinical aspects, and, in fact, the work of this organization will remain a standing memorial to the zeal, industry, and devotion of its founder—Blair-Bell.

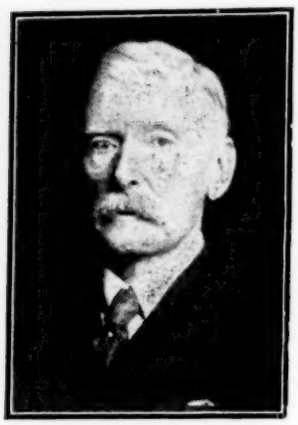
By the death of Dr. R. J. MORRIS on January 23rd, after a long illness, Harrogate loses a senior and much-respected practitioner. He joined the British Medical Association in 1896, and was chairman of the Harrogate Division in 1928–9; he had also been president of the Harrogate Medical Society. Richard John Morris was born at Ross Cardery, County Cork, in 1860, and from the Diocesan School at Cork entered Queen's College, continuing his medical studies at St. Bartholomew's Hospital. He obtained the L.S.A. in 1884, the M.R.C.S. and L.R.C.P. in 1900, and the M.D.Durham in 1902, becoming M.R.C.P. a few years later. He was gazetted to the 1st Volunteer Battalion King's Own Royal Lancaster Regiment, and at the beginning of the war held the rank of surgeon major. In 1915 he was appointed officer in charge of the Northern Command Depot at Ripon, with the temporary rank of lieutenant-colonel R.A.M.C. For his services in the war he was created C.B.E. in 1920, and he also held the Territorial Decoration. He was a fellow of the Electrotherapeutic Society of America, and contributed to the *British Medical Journal* in 1927 a paper on the electrical treatment of paralysis of poliomyelitis. Dr. Morris was a well-known member of the Harrogate Golf Club, and was also an excellent shot, having captained the Irish International team which competed at Bisley from 1896 to 1900.

SIR JOHN MARNOCH, K.C.V.O., LL.D., M.B., C.M.

Emeritus Professor of Surgery, University of Aberdeen; Consulting Surgeon, Aberdeen Royal Infirmary

We regret to announce the death of Sir John Marnoch, the eminent Scottish surgeon, which took place at his home in Albyn Place, Aberdeen, on February 2nd. He had only lately retired from the position of Honorary Surgeon to H.M. Household in Scotland, and was appointed last September Extra-Surgeon to the King in Scotland.

John Marnoch, son of James Marnoch of Aberdeen, was born in that city on May 23rd, 1867, and, from the Grammar School in Old Aberdeen, went to study medicine at King's and Marischal College, graduating M.A. in 1888, and M.B. and C.M. (with highest honours) in 1891. During the next year or two he held various resident appointments at the Royal Infirmary and Royal Hospital for Sick Children, and acted as assistant to the professor of physiology in the university. He was elected assistant surgeon to the Royal Infirmary in 1893, becoming full surgeon in charge of wards and lecturer on clinical surgery in 1900. Thenceforward he devoted himself entirely to surgical practice, and made a number of important contributions to surgical literature. On the retirement of Sir Alexander Ogston from the regius professorship of surgery at Aberdeen in 1909, Marnoch was appointed to the vacant chair, and occupied it until June, 1932, when he resigned after many months of ill-health. Professor J. R. Learmonth succeeded him, and he was appointed emeritus professor.



On the outbreak of war Professor Marnoch joined the *à la suite* staff of the 1st Scottish General Hospital with the rank of lieutenant-colonel R.A.M.C. (T.), and was later promoted brevet-colonel in recognition of much valuable work in the surgical wards and operating theatres. In the early weeks of the war he was chosen to perform appendicectomy upon H.R.H. the Duke of York, who was then serving in the Navy and went to Aberdeen for the operation. In the following year he was created C.V.O., and in the Birthday Honours of 1928 he was advanced to K.C.V.O.

Marnoch was one of the earlier British surgeons to make a special study of the operative treatment of gastric ulcer; in April, 1909, he recorded, in these columns, sixty cases upon which he had operated during the preceding seven years. He was a good teacher, and his operative technique was much admired; innumerable patients and pupils bore witness to his skill and sympathy. The fruits of his experience appeared in the *Journal of Physiology* (recording an experimental research undertaken jointly with the late Professor Hamilton into the aetiology of cancer), in *International Clinics*, in the *Lancet*, the *British Medical Journal*, the *British Journal of Surgery*, and the *Annals of Surgery*. He was a member of the Association of Surgeons of Great Britain and Ireland, and had served as examiner in surgery for the Universities of Edinburgh, Durham, and Liverpool. In December, 1931, he was appointed, in succession to Sir Ashley Mackintosh, to represent the University of Aberdeen on the General Medical Council, and his period of office had nearly a year to run. In 1930 he was made Deputy Lieutenant for the County and City of Aberdeen, and three years later the University conferred on him its honorary degree of LL.D. At the graduation ceremony the Dean of the Faculty of Law spoke of the profound regret with which the University Court had accepted his resignation from the chair of surgery, and of his unselfish devotion to the exacting claims of his profession. He married in 1900 Agnes Holt, daughter of Alexander Macdonald, shipowner of Garmouth, and had two daughters.

Sir John Marnoch joined the British Medical Association in 1895, and at the Annual Meeting in Aberdeen under the presidency of Sir Alexander Ogston, just before the outbreak of war, he held office as vice-president of the Section of Surgery. He was president of the Aberdeen Branch in 1922–5, and on the death of Sir Alexander Ogston, seven years ago, he wrote for these columns a very warm tribute to the work and character of his old chief and teacher, whose traditions he upheld during twenty-three years' tenure of the regius chair of surgery.

[The photograph reproduced is by Russell, London.]

Dr. HAROLD HART-JACKSON died at Warkworth, Northumberland, on January 25th. He received his medical education at St. Mary's Hospital, London, and at Leeds, and obtained the M.R.C.S. and L.R.C.P. in 1897. "W. S." writes: There may be a few surviving Mary's men who remember Hart-Jackson, who died after a long illness, aged 65. After qualifying he saw service in South Africa. I became associated with him in public health work at Newbiggin-by-the-Sea, Northumberland, about 1925, and later succeeded him as M.O.H. for that district. Hart-Jackson was a man of refined, scholarly tastes, a great bookman, book-collector, and antiquary. In pursuit of one's studies in Northern archaeology great help was always at hand in Hart-Jackson's study, especially in the realm of mediaeval monuments, church architecture, screen work, etc., and on the antiquities of the Roman Wall. As a bibliophile he shone in the knowledge of first editions, incunabula, and the ancient classics, his library being full and representative. As a sportsman he was keen on tennis in his younger days, and was a good shot until the last few years. He retired to Warkworth about two years ago, and is buried in the churchyard overlooking the beautiful valley of the River Coquet.

We regret to announce the untimely death on January 30th, from pneumonia, of Dr. STEWART FARQUHARSON of Chelsea, at the age of 41. He received his medical education at St. Thomas's Hospital, where he obtained the diplomas M.R.C.S., L.R.C.P. in 1923, and graduated M.B., B.S.Lond. in the following year. He was house-physician at the North-West London and Hampstead General Hospital, and early showed great interest and special abilities in children's diseases, working for a time as clinical assistant in the children's department of St. Thomas's Hospital. With a great capacity for friendship, he became widely popular in Chelsea, and in recent years he was a devoted honorary secretary of the local Division of the British Medical Association, which he did much to invigorate. Dr. Farquharson held many appointments, including those of honorary physician to the Chelsea District Nursing Association, anaesthetist to the London County Council clinic at the Victoria Hospital for Children, and clinical assistant at the Paddington Green Hospital for Children.

The death is announced of Professor EMIL HEYMANN, chief of the surgical department of the Augusta Hospital in Berlin-Charlottenburg at the age of 58, and of Professor LUDWIG JACOB, in charge of a hospital in Bremen, at the age of 55. Professor LUDWIG MANN, the neurologist of Breslau, died on January 14th, at the age of 70.

Universities and Colleges

UNIVERSITY OF LONDON

At a meeting of the Senate held on January 29th, with the Vice-Chancellor, Mr. H. L. Eason, in the chair, the William Julius Mickle Fellowship for 1936 was awarded to Dr. H. P. Himsworth.

Professor H. H. Woollard, M.D., D.Sc., has been appointed to the University Chair of Anatomy tenable at University College from October 1st.

UNIVERSITY OF MANCHESTER

The following changes in status in the Faculty of Medicine have been approved, to take effect on September 29th: Dr. T. H. B. Bedford to be Lecturer in Pharmacology, and Dr. Raymond Whitehead to be Lecturer in Pathology.

Mr. H. T. Simmons, Ch.M., F.R.C.S., has tendered his resignation of the Wardenship of Lister House, to take effect on March 31st.

UNIVERSITY OF ST. ANDREWS

A meeting of the University Court was held on January 24th, when, on the nomination of the professor of surgery, Mr. Walter Gordon Campbell was appointed assistant in surgery for the remainder of the academical year.

It was intimated that it is proposed to award the William A. Low Memorial Prize to the student of medicine obtaining the highest marks in the third and fourth professional examination for the degrees of M.B., Ch.B. in the year of the award.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A meeting of the Royal College of Physicians was held on January 30th, when the President, Lord Dawson of Penn, was in the chair.

Before passing to the business of the day, the President spoke briefly on the wonderful achievements that had fallen within the reign of King George V, and all that the Empire owed to his character and example. Great though these achievements had been, there was solid ground for hope that King Edward VIII's reign would see even greater. The President then moved: "That this Royal College do present a humble Address of Condolence to His Majesty King Edward." This was read by the registrar, all the Fellows standing.

The President announced that the Gilbert Blane Gold Medals for 1935 had been awarded to Surgeon Lieutenant Commanders A. A. Pomfret and W. G. Fitzpatrick, R.N.

Appointment of Representatives

Representatives of the College were appointed to attend the Health Congress of the Royal Sanitary Institute at Southport, July 6th to 11th, and the Congress of the Royal Institute of Public Health and the Institute of Hygiene at Edinburgh, May 26th to 30th. Dr. Rupert Waterhouse was appointed a representative on the Medical Advisory Committee of the British Health Resorts Association.

The Harveian Librarian announced the presentation by Professor Roy Dobbin of a sumptuously bound copy of the manuscript of Ibn Al-Naphis, which dates from the thirteenth century, and in which is the first known description of the mechanism of the lesser circulation.

Lectures

Dr. E. L. Middleton will deliver the Milroy Lectures on "Industrial Pulmonary Disease due to the Inhalation of Dust, with Special Reference to Silicosis" on February 27th and March 3rd; Dr. R. A. McCance the Goulstonian Lectures on "Medical Problems in Mineral Metabolism" on March 5th, 10th, and 12th; Dr. John Parkinson the Lumleian Lectures on "Enlargement of the Heart" on March 17th and 19th; and Dr. Joseph Needham the Oliver-Sharpey Lectures on "Chemical Aspects of Morphogenetic Determination" on March 24th and 26th. All the lectures will be delivered at the College, Pall Mall East, S.W., at 5 p.m.

Membership

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

Felix Wilfrid Arden, M.D.Adelaide, Sailendra Mohon Basu, M.B.Rangoon, James Frederick Brailsford, M.D.Birm., Geoffrey Oswald Atyeo Briggs, M.B.Camb., Francis Hayling Coleman, M.B.Camb., Leybourne Stanley Patrick Davidson, M.D.Ed., Richard Heyworth Dobbs, M.B.Camb., Colin Campbell Edwards, M.B.Sydney, David Stanley Fairweather, M.B.Ed., David George Ferriman, M.B.Oxf., Alan Morton Gill, M.D.Lond., Arthur Rupert Hallam, M.D.Ed., Ernest Arthur Hardy, M.B.Lond., Herbert Edward Holling, M.B.Sheff., Philip William Hutton, M.B.Camb., Alan Leon Jacobs, M.B.Oxf., Evan Idris Jones, M.B.Lond., Francis Avery Jones, M.B.Lond., Edwin James Reid Leiper, M.B.Aberd., Jack Watson Litchfield, M.B.Oxf., Leo McGoldrick, M.B. N.U.Irel., Wilfrid Marshall, M.D.Aberd., James Lister Newman, M.D.Camb., John William Osborne, M.B.Sydney, John Scholes Parkinson, M.B.Manch., Abdel Aziz Sami, M.B.Cairo, Alice Mary Stewart, M.B.Camb., Charles Henry Stewart-Hess, M.B.Liverp., Harold Midgley Turner, M.D.Manch., Rustom Jal Vakil, M.B.Lond.

Licences and Diplomas

Licences to practise physic were conferred upon the following 140 candidates (including eight women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

A. W. Abramson, Ruth M. Addison, G. W. Alderman, S. Balasingam, E. J. W. Barnard, H. F. Barnard, A. B. Baxter, D. Bobker, E. S. Bompas, A. W. Bone, J. C. B. Bone, R. E. Bonham-Carter, J. P. Brazil, B. B. Bridges, D. H. D. Burbridge, J. C. Busby, L. S. Calvert, Josephine H. Campbell, W. W. Cashmore, S. R. Chandra, E. P. Clarke, J. H. Coles, Kathleen Craddock, M. Curwen, C. S. Darke, J. E. A. David, J. R. Davidson, H. J. Davies, J. N. Deakin, G. G. Doel, B. J. Doran, C. A. Dowding, H. G. Earnshaw, R. B. Evans, F. I. Firth, R. Fleming, C. B. Franklin, D. F. Freebody, J. E. Garson, Joyce M. George, J. Ghosh, D. R. Gibson, S. Glaser, L. Greenbaum, J. C. Harland, H. R. S. Harley, G. D. Harthan, J. Heginbotham, A. G. Hemsley, G. H. M. Hemsted, R. K. R. Henry, A. G. W. Hill, B. W. Hunt, C. W. Hutt, W. G. Hutton, M. Inayatullah, M. Irving, Gwyneth M. Jenkyn-Owen, A. C. Jones, S. E. L. Kahla, E. Kaplan, H. M. Kelsey, K. C. Kershaw, F. B. Kiernander, W. J. Latham, L. R. Leask, H. A. Leggett, M. Lewis, R. N. A. Leyton, M. Lipson, S. E. Littlepage, J. M. Lockett, R. D. McDonald, J. T. Mair, C. W. Maisey, S. Marinker, H. A. C. Mason, L. Merrill, P. J. W. Mills, A. G. Moore, F. T. Moore, Margaret J. Moore, F. L. E. Musgrove, R. O. G. Norman, J. D. Ogilvie, W. A. Oliver, W. V. Owen, D. E. Parry, J. C. Patel, N. O. Paterson, E. N. Pearlman, J. Pemberton, R. R. Prewer, D. E. Price, J. Rabinovitch, O. N. Ransford, H. W. Rees, J. L. Reid, G. Rigby-Jones, B. Robbins, A. N. Roy, P. S. Sambandam, L. J. Sandell, H. V. Sankarayya, E. Sayle, M. Schwartz, R. Solley, G. C. Steel, D. E. Stephens, B. P. Stone, J. S. Stuart, F. J. E. Stuhl, K. H. Sugden, C. H. Tanner, B. W. Thomas, Dorothy J. Thompson, T. H. Tidswell, R. C. Tudway, R. G. Tuke, J. E. Underwood, G. J. van der Merwe, C. W. H. Van der Post, W. Van Essen, G. L. Wainganker, G. W. Ward, J. H. Ward, A. G. Waters, S. A. Way, S. Weinstock, J. L. Whatley, R. R. Willcox, E. G. Williamson, Louise F. Wilson, A. Winder, H. L. Wolfe, L. A. C. Wood, J. E. Wooding, G. N. Wright, P. L. Young, W. J. Young.

Diplomas in Psychological Medicine, Laryngology, and Otology, and Tropical Medicine and Hygiene, were conferred jointly with the Royal College of Surgeons. The names of the successful candidates were printed in the report of the meeting of the Council of the Royal College of Surgeons, published in our issue of January 18th (p. 136).

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons, to S. D. Elliott, R. J. Farnbach, R. A. Jones, G. G. Kayne, W. F. Lane, Catherina E. Murray, C. R. Naidu, T. S. Rodgers.

Diplomas in Medical Radiology were granted, jointly with the Royal College of Surgeons, to E. W. Casey and F. Ellis.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Surgeons, to Olive M. Anderson, H. B. Logan, S. D. McAusland, G. R. Phillips, K. B. Pinson, B. Weinbren, H. L. Willey, C. H. Wilson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Begley Studentship, of a value of £20 per annum and tenable for three years, will be awarded in April to the candidate obtaining the highest number of marks in the anatomical part of the Examination in Anatomy and Physiology of the Conjoint Examining Board in England held in March and April. Full particulars may be had from the Secretary of the College, Lincoln's Inn Fields, W.C.2.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A quarterly meeting of the Council was held on January 25th in the College House, 58, Queen Anne Street, London, with the President, Sir Ewen J. Maclean, in the chair.

The President reported that a loyal address had been sent to King Edward VIII on behalf of the members of the Council, Fellows, and Members of the College resident in all parts of the British Empire, offering a respectful expression of sorrow and sympathy upon the bereavement that had fallen upon His Majesty, Queen Mary, and the other members of the Royal Family by the death of King George, and tendering to His Majesty congratulations on his accession to the throne.

The President reported that the outline of a scheme for a National Maternity Service had been submitted to the Minister of Health.

The report of the investigation into the use of analgesics suitable for administration by midwives was passed, and a full summary of this appears at page 273.

The following were admitted to the Membership of the College:

Alan John Stewart Lawson Boyd, South Africa; Mildred Isabel Ealing, London; Barton Gilbert, London; Stanley Henderson, Liverpool; Edwin Holmes, Hove; Charles Roy MacDonald, Sheffield; John Sinclair MacVine, London; Thomas N. MacGregor, Edinburgh; Stanley Devenish Meares, Sydney; Elizabeth Main Moore, London; Frederick Walter Gifford Nash, Bedford; John Gregory O'Donoghue, Melbourne; Patrick Playfair, London; Anthony Watson Purdie, Glasgow; Cleveland Patrick Scott, London; Edward Solomons, Dublin; William Ralph Winterton, London; Bryan Leslie Jeaffreson, Leeds.

The following were admitted to the Membership of the College *in absentia*:

Israel Goldberg, Capetown; Presley Archer McLeod, Ontario; Cyril Macdonald Plumptre, Madras; Harold Rowntree, Lahore.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—R. H. Bembridge, H. A. Koretz, G. N. Rodgers.
MEDICINE.—F. E. Bedell, M. G. H. Jones, R. L. Walmsley.
FORENSIC MEDICINE.—F. E. Bedell, N. Bickford, E. E. Evans, M. G. H. Jones, R. L. Walmsley.
MIDWIFERY.—J. D. Anderson, G. B. Barbour, E. E. Evans, E. M. Frankel, D. L. Jones, J. P. McGuire, I. M. Monare, C. J. S. Sergel.

The diploma of the Society has been granted to G. B. Barbour, R. H. Bembridge, J. P. McGuire, G. N. Rodgers, and R. L. Walmsley.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glas.:

E. Greenhalgh, O. S. Sela, V. Nadarajah, O. W. Marienfeld, N. S. Mohammed, F. H. Wilson, P. C. Burgess, J. H. Lichtenbelt, H. Jacobs, Edith H. Busse, D. A. S. Martin, L. L. Harrop, F. Buchsbaum, A. Rosenbaum, M. Couperus, F. J. Beaton, I. Dolsky, A. Crawford, V. Klare, R. M. Boveri, H. I. Russek, A. J. Snyder, N. R. James, O. K. Khallaf, K. G. Naidoo, M. Din, Emma Pines, H. Friedman, S. H. Fuchs, K. T. Bluth, Sophia V. Elgev, L. O. Adesigbin, S. F. Auerbach, K. M. El-Moshneb, W. W. Weir.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Both Houses of Parliament resumed the business of the session on February 4th. The House of Commons on that day discussed the Cotton Spinning Industry Bill.

Lord Kilmaine gave notice that in the House of Lords on February 6th he would ask the Government whether something could not be done to stop the independent broadcasting company of London, which broadcast through Radio Normandie and Luxembourg, from advertising patent medicines and fortune tellers, "such publicity being likely to lead to harm." The course of the debate will probably help to determine the Government's attitude to the Medicines and Medical Appliances Bill. Captain G. S. Elliston was prepared to introduce this measure if successful in the ballot for private members' Bills held in the House of Commons on February 6th.

Discussion on the Poisons List and Rules, now laid on the Table of both Houses, is likely in the Commons. Mr. K. W. M. Pickthorne may bring forward objections which have been expressed at Oxford and Cambridge.

COMMITTEE ON CORONERS

The Report of the Departmental Committee on Coroners was published on February 7th. The committee recommends that the office of coroner be retained, but that in future only solicitors or barristers should be appointed as coroners, and whenever possible should have a knowledge of forensic medicine. In cases of suicide the Press should be prohibited from publishing an account of proceedings at the inquest beyond the fact that an inquest had been held, the name and address of the deceased, and the verdict that the deceased died by his own hand. No inquiry into the state of mind of the deceased should be made in cases of suicide save in so far as it might throw light on whether he took his own life, and no reference should be made in the verdict to the state of mind of the deceased. The verdict of felo de se should be abolished.

In evidence Sir BERNARD SPILSBURY said that a great deal of harm was done by the extent to which the details of suicide cases were at present published. Sir WILLIAM WILLCOX was strongly opposed to publication of letters in such cases. Dr. ROCHE LYNCH pointed out the danger of making known the poison which had caused the death of a person who had committed suicide. Chief constables who gave evidence all agreed that the publication of details in suicide cases was harmful. Representatives of the Trades Union Congress, in evidence before the committee, said they believed the publication of unwholesome details led to imitative suicides. The National Council of Mental Hygiene was disquieted at the increasing suicide rate, and said publication of details led to imitative suicides.

Recommendations are made for restricting the procedure at inquests in cases of suspected murder and in those of suspected manslaughter, including abortion. It is further advised that in cases which arise from road accidents, or are associated with war pensioners or with industrial accidents, the coroners' court should not assess civil liability. The committee recommends that the coroner should have discretion to dispense with an inquest in deaths due to simple accidents or to chronic alcoholism, or in deaths under an anaesthetic or during an operation. He should be obliged to hold an inquest in cases of suspected industrial disease. Post-mortem examinations ordered by coroners, save in exceptional cases, should be made by pathologists on a list to be kept by the Home Office under the advice of an expert advisory committee.

Deaths under Anaesthetics

Respecting deaths under anaesthetics, the committee says:

"We consider that coroners should be informed of all deaths under or in consequence of an anaesthetic, or during an operation; but that there should be an express statutory provision that, where an anaesthetic has been administered or an operation performed with reasonable care, a death which results should not be regarded, by reason simply of the fact that an anaesthetic was administered or an operation performed, as a violent or unnatural death. It should, however, be provided that the coroner, before deciding not to hold an inquest because he is satisfied that reasonable cause was shown, should have regard to any views expressed by the relatives of the deceased.

"We do not propose to impose any statutory obligations regarding the reporting of these deaths to coroners; but, as the reporting of deaths by the registrar to the coroner necessarily involves some delay before the coroner is informed of the case, we recommend that steps should be taken administratively to ensure that the authorities of hospitals and nursing homes report to the coroner any deaths under anaesthetics or in the course of an operation, with such information about the circumstances of the case as the coroner may wish in this class of case. On receipt of this information the primary question to which the coroner should address himself is whether the circumstances are such that for his purposes he desires a post-mortem examination. Such an examination would be made at public expense, and normally the coroner might be expected to choose a pathologist outside the hospital in question for the examination. In certain cases, where it is important to have an immediate post-mortem examination, he might well appoint the pathologist of the institution to make the examination. If the coroner does not require a post-mortem examination to be performed, he should inform the hospital authorities without delay in order that the hospital may make arrangements for an examination for scientific purposes if such is thought desirable.

"We have been impressed by the need for scientific inquiries into the causes of deaths due to anaesthetics; but the arrangements to be made for investigating these deaths, and for collating centrally the results of inquiries at local hospitals, do not come within our terms of reference. We believe, however, that our recommendations under this head will facilitate the conduct of scientific inquiries in these cases."

Coroners' Censures

In another passage the committee states: "Mr. H. L. Eason, superintendent of Guy's Hospital and Vice-Chancellor of London University, and representatives of the British Medical Association, drew our attention to cases in which coroners have tended to use their public position for the

purpose of censuring or criticizing a hospital staff in professional medical matters. For example, a coroner may criticize the administration of the hospital, the status and competence of its medical officers, or the specific methods employed in the professional treatment of the patients. Persons so attacked have no redress as the law now stands. The comments are made in a judicial proceeding; there is no issue on which the persons defamed have any right of appeal; and they are therefore without remedy. The Christian Scientists referred us to cases—admittedly fewer in number than formerly—in which coroners had criticized the beliefs held by Christian Scientists." The committee considers that this practice should be brought to an end by a Rules Committee and Disciplinary Committee.

Voluntary Hospitals (Paying Patients) Bill

In the House of Lords on February 4th the Voluntary Hospitals (Paying Patients) Bill was considered in Committee.

The only amendment of substance was in Clause 6, Subsection 3. As printed in the Bill, this reads: "(3) Except to the extent of an application of funds authorized under Subsection (2) of Section 3 of this Act, an order authorizing the provision or maintenance of any buildings or beds shall not be construed as conferring on the committee of management any power, which apart from the order would not be exercisable by them, to apply funds in the provision or maintenance thereof."

On LORD LUKE'S motion, the following Subsection was unanimously substituted: "(3) Except to the extent of an application of funds authorized under Subsection (2) of Section 3 of this Act an order shall not be construed as authorizing any application of funds."

The Bill passed through Committee.

Accidents in the Mining Industry

On February 4th Captain CROOKSHANK informed Mr. Tom Smith that provisional figures for 1935 showed that in Yorkshire thirty-one persons were killed underground and twenty-one seriously injured by explosions of fire-damp or coal dust. From the same cause in Great Britain thirty-seven persons were killed and sixty-five seriously injured. By falls of ground seventy persons were killed and 224 seriously injured in Yorkshire, and 452 persons were killed and 1,476 seriously injured in Great Britain. As a result of shaft accidents two persons were killed and seventeen seriously injured in Yorkshire, and 183 and 788, respectively, in Great Britain. From miscellaneous causes, eleven persons were killed and thirty-seven seriously injured in Yorkshire, and seventy-six and 608, respectively, in Great Britain. On the surface six persons were killed and fifteen seriously injured in Yorkshire on railways, sidings, or tramways, and thirty-four and 109, respectively, in Great Britain. Other surface accidents resulted in ten persons killed and nineteen seriously injured in Yorkshire, and fifty killed and 176 seriously injured in Great Britain. The total underground and surface accidents resulted in 169 persons being killed and 463 seriously injured in Yorkshire, and 848 killed and 3,290 seriously injured in Great Britain.

SPECIFICATION FOR HAEMACYTOMETER COUNTING CHAMBERS AND DILUTION PIPETTES

A committee of the British Standards Institution has prepared a "Draft British Standard Specification for Haemacytometer Counting Chambers and Haemacytometer Dilution Pipettes." The institution is now circulating copies of this draft for comment, and is desirous that the draft should receive the widest possible consideration, so that the specification, when finally published, may command the maximum possible measure of agreement. A copy of the draft specification may be obtained, post free, on application to the Director, British Standards Institution, 28, Victoria Street, London, S.W.1, to whom also all suggestions for amendments to the draft should be sent. All comments submitted to the institution will receive careful consideration when the draft is being revised for publication.

Medical News

Dr. Philip H. Manson-Bahr will deliver the Lettsomian Lectures on "The Differential Diagnosis of Diseases of the Colon (Dysentery and Colitis) and their Complications, with Special Reference to Treatment" before the Medical Society of London on Monday, February 17th, Wednesday, February 26th, and Monday, March 2nd, all at 9 p.m.

Dr. Cecil Price-Jones will deliver a lecture on "The Sizes of Blood Cells," at University College Hospital Medical School, University Street, W.C., on Friday, February 28th, at 5 p.m.

On Friday, February 14th, Mr. W. McAdam Eccles, F.R.C.S., will deliver the Second Rae Memorial Lecture at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1, on "Progress and Problems." At this lecture the chair will be taken by Sir Henry Brackenbury, M.D., and Mr. Eccles will illustrate the test for the determination of the actual percentage of alcohol circulating in the blood, especially in relation to road accidents.

Lectures on the physical aspects of mental disorder will be given by Dr. Edward Glover, on "The Neuroses," and by Dr. Denis Carroll, on "Physical Aspects of the Psychoses," at the Institute of Psycho-Analysis, 36, Gloucester Place, W., on Thursdays, February 13th and 20th, at 8.30 p.m. Admission to each lecture is 1s. 6d.

Three lectures on child psychology will be given at Carnegie House, 117, Piccadilly, W., on Mondays, February 17th and 24th, and March 2nd, at 3.15 p.m. The first lecture will be delivered by Dr. William Moodie on "The Growth of a Healthy Personality"; the second by Dr. J. A. Hadfield on "The Child's 'Right and Wrong'"; and the third by Mr. Alec Rodger on "Some Problems of the Adolescent." The lectures have been arranged by the women's committee of the National Institute of Industrial Psychology and the London Child Guidance Clinic, and are intended for parents, school masters and school mistresses, nurses, and others interested in the upbringing and education of children and young people. The fee for the course is 12s. 6d. (single lecture 5s.), and tickets may be obtained from the National Institute of Industrial Psychology, Aldwych House, W.C.

Mr. John Wilson, F.R.I.B.A., chief architect to the Department of Health for Scotland, will open a discussion on "The Sanitation and Planning of Flats" at a meeting of the Royal Sanitary Institute at 90, Buckingham Palace Road, London, S.W., on Tuesday, February 11th, at 5.30 p.m.

The fifteenth annual dinner of the Society of Radiographers will be held at the Restaurant Frascati, 32, Oxford Street, W., on Saturday, February 22nd, at 7 p.m.

Owing to the death of King George V the annual dinner of the Medical Society of London will not take place this year. The dinner had been fixed for February 27th.

Owing to the death of King George V the annual dinner of the Hunterian Society, which was to have been held at the May Fair Hotel on February 13th, has been cancelled. The Hunterian Oration will be delivered at the Mansion House, on Monday, February 24th, at 9 p.m., by Sir G. Lenthal Cheatle, on "John Hunter's Time and Ours."

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Tuesday, February 11th, at 8.30 p.m., when Professor E. C. Dodds will deliver a lecture on "Chemical and Pharmacological Aspects of the Hormones."

A sessional meeting of the Royal Sanitary Institute will be held in the Grand Pump Room, Bath, on Friday, February 14th, at 5 p.m., when discussions on "Some Problems of Water Supply" and "Smoke Abatement—Industrial and Domestic" will be opened by Mr. F. P. Sissons and Mr. A. Tyler respectively.

Owing to the illness of Mr. H. M. Traquair, the two lectures on perimetry arranged to be given at University College Hospital Medical School on February 10th and 11th have been postponed.

The examination of the sons of medical practitioners under 9 years of age for the two annual scholarships of £100 each, given by Sir Milsom Rees, for Port Regis Preparatory School, Broadstairs, takes place on March 3rd. Particulars may be had from the Head Master.

The Fellowship of Medicine announces that surgical tutorial classes will be given at the National Temperance Hospital, at 8.30 p.m.: on February 11th, injuries to joints, muscles, and tendons; February 13th, kidney and bladder; February 18th, deformities; and February 20th, liver, spleen, and pancreas. For Primary F.R.C.S candidates a course of lecture-demonstrations in anatomy and physiology will be given at the Infants Hospital on Mondays, Wednesdays, and Fridays, at 8 p.m., from February 24th to April 24th. Advanced courses include gynaecology, at Chelsea Hospital for Women, February 10th to 22nd; chest diseases, at Brompton Hospital, February 10th to 15th; thoracic surgery, at Brompton Hospital, February 24th to 29th; M.R.C.P. clinical and pathological classes, at National Temperance Hospital, Tuesdays and Thursdays, at 8 p.m., February 25th to March 12th; orthopaedics, at Royal National Orthopaedic Hospital, March 9th to 21st. Week-end courses: children's diseases, at Princess Elizabeth of York Hospital, February 22nd and 23rd; chest diseases, at Brompton Hospital, March 7th and 8th; clinical surgery, at Royal Albert Dock Hospital, March 14th and 15th. These courses are open only to members and associates of the Fellowship of Medicine. Full details may be obtained from 1, Wimpole Street, W.

The twenty-second annual conference of the National Association for the Prevention of Tuberculosis will be held in the Conference Hall, County Hall, Westminster Bridge, London, on July 16th, 17th, and 18th. Further particulars will be issued in due course from the office of the N.A.P.T., Tavistock House North, Tavistock Square, W.C.1.

Beginning with the January issue, the title of the *American Journal of Syphilis* has been changed to *American Journal of Syphilis, Gonorrhoea, and Venereal Diseases*, and it is now published bimonthly instead of quarterly.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1 on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are
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The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin).

QUERIES AND ANSWERS

Recurrent Nightmares

"H. P. C." writes: A woman aged 54, married, and with no children, is quite normal and healthy during the daytime. A few minutes after falling asleep she wakes shouting and waving her arms, and seems in great distress; occasionally she jumps out of bed. Recovery takes place quickly, but the attacks recur ten or twelve times during the first half of the night. Towards morning she sleeps heavily, and the next day is unfit for work. The attacks take place almost every night, and vary in severity and violence. Similar milder attacks occur if she falls asleep during the daytime. The first attack was in 1916, after having gas for a dental extraction. She was married in 1917, and the attacks have increased in frequency and severity for the last ten years. As a young woman she had a great deal of nursing of sick relatives to do, and often missed her sleep. She remembers also a low lintel in her father's house on which she often knocked her head. In appearance and on examination she is perfectly healthy and normal, apart from occasional indigestion and an inability to take fats. The urine is normal, and the systolic blood pressure is 140. She occasionally has eczema of the face and hands. There has never at any time been a loss of sphincter control, and the consultants whom she has seen are agreed only on the fact that she is not an epileptic. Bromides and many other sedatives, and psycho-analytical treatment also, have been tried without avail. I should be grateful for suggestions as to both diagnosis and treatment.

Treatment of Dipsomania

"RETIRED PRACTITIONER" writes in reply to "M. D." (January 18th, p. 142): The most valuable and indispensable adjunct in the management of these cases, and one not sufficiently well known, is the use of vin. ipecac., in doses commencing with half a drachm and gradually increasing as tolerance ensues up to one and a half drachms, and alternating this with any simple sedative. Vin. ipecac. contains sherry. Half to one teaspoonful can be slipped into any form of alcoholic drink without the slightest risk of detection. Within a few moments a feeling of nausea follows, and the patient, who a moment before was violent and uncontrollable, begs to be put to bed and is at once reduced to ready control. After the doctor has himself introduced and explained the procedure the unhappy wife can carry on with it under his guidance herself. After the vomiting, if the patient can be induced to take a sedative, he awakes refreshed and is sometimes able to conquer his craving for alcohol. The use of vin. ipecac. will relieve the medical attendant from many unwelcome night calls. It makes a wonderful difference to the management of these distressing and perplexing cases, and it is absolutely safe. It often shortens the duration of an attack of alcoholic craving and hastens recovery to normal.

LETTERS, NOTES, ETC.

The Indelible Link

"A. C. L." has caught us nodding. He writes: Congratulations and thanks to your annotator for a novel mixed metaphor on page 219 of your last issue. It is easy to see the origin of his "indelible link" but less easy to prevent the makers of writing materials from making use of the phrase. Perhaps it might be patented.

A Warning

"F. R. B." writes: I have been pestered recently on three occasions by persistent bucket-shop sharks on the long-distance telephone from London. One had to be violently rude to shake them off. They resolutely refuse to take "No" for an answer. I understand that these pirates confine their attentions to medical men, parsons, and such-like presumably innocent pigeons. They must catch them, because one gentleman with an Eastern European accent rang me up twice in one day, although on the first occasion I had requested him to go to Gehenna. I would warn my medical brethren to have nothing whatever to do with those people with high-sounding names and imposing circulars. If in these hard times they should have money to invest, let them be advised by their bank or a member of the Stock Exchange.

Corrigendum

Mr. H. B. STALLARD, whose paper on corneal grafting appeared on January 18th, asks us to correct the cross-heading on page 109. This should read "Post-operative Treatment," not "Pre-operative Treatment."

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 49, 50, 51, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 68.